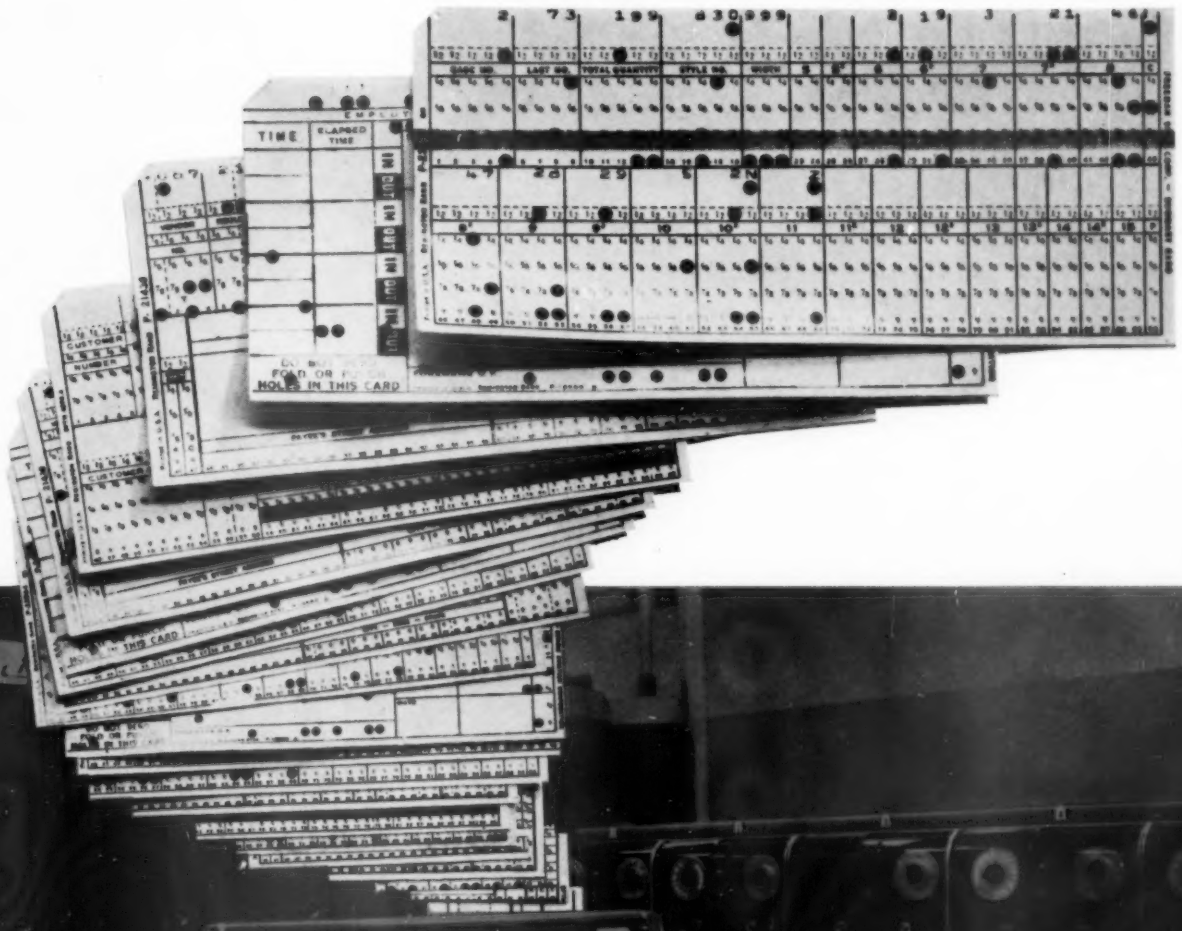
MAY 25, 1959

PURCHASING

The Methods and News Magazine for Industrial Buyers



Materials Management and Automation

Start on page 69

A CAHNERS PUBLICATION SEVENTY-FIVE CENTS TABLE OF CONTENTS PAGE 5

Melting furnace at Calumet & Hecla, Inc.—Wolverine Division, where Shell Irus Fluid 902 eliminates the danger of hydraulic line fires.

Ready... aim... NO FIRE!

Take 10 high-temperature alloy-melting furnaces, hydraulically operated—each pouring 1500 lbs. of molten metal every hour in close proximity to "live" hydraulic lines—and you can readily see why selection of hydraulic fluids is important to Calumet & Hecla's Wolverine Tube Division.

Now the operation is made more reliable by the use of Shell Irus Fluid 902, a water-in-oil emulsion type fluid. Irus® Fluid was C & H's choice, after carefully studying other commercial hydraulic fluids—for many reasons:

1. Irus Fluid will not support combustion.
2. Irus Fluid has excellent lubricating properties.
3. Irus Fluid has hydraulic efficiency and equipment compatibility.
4. Irus Fluid is economical, costing about one-third less than other fire-resistant fluids.
5. Irus Fluid's bright yellow color makes it easy to spot and trace leaks.

In plant after plant, operators find that these advantages assure maximum safety to both personnel and equipment.

If you have a hydraulic line fire hazard, we suggest that you have the Shell Industrial Products Representative show you the many advantages in Irus Fluid 902; or write to Shell Oil Company, 50 W. 50th St., New York 20, N. Y., or 100 Bush St., San Francisco 6, Calif. In Canada: Shell Oil Company of Canada, Ltd., 505 University Ave., Toronto 2, Ontario.

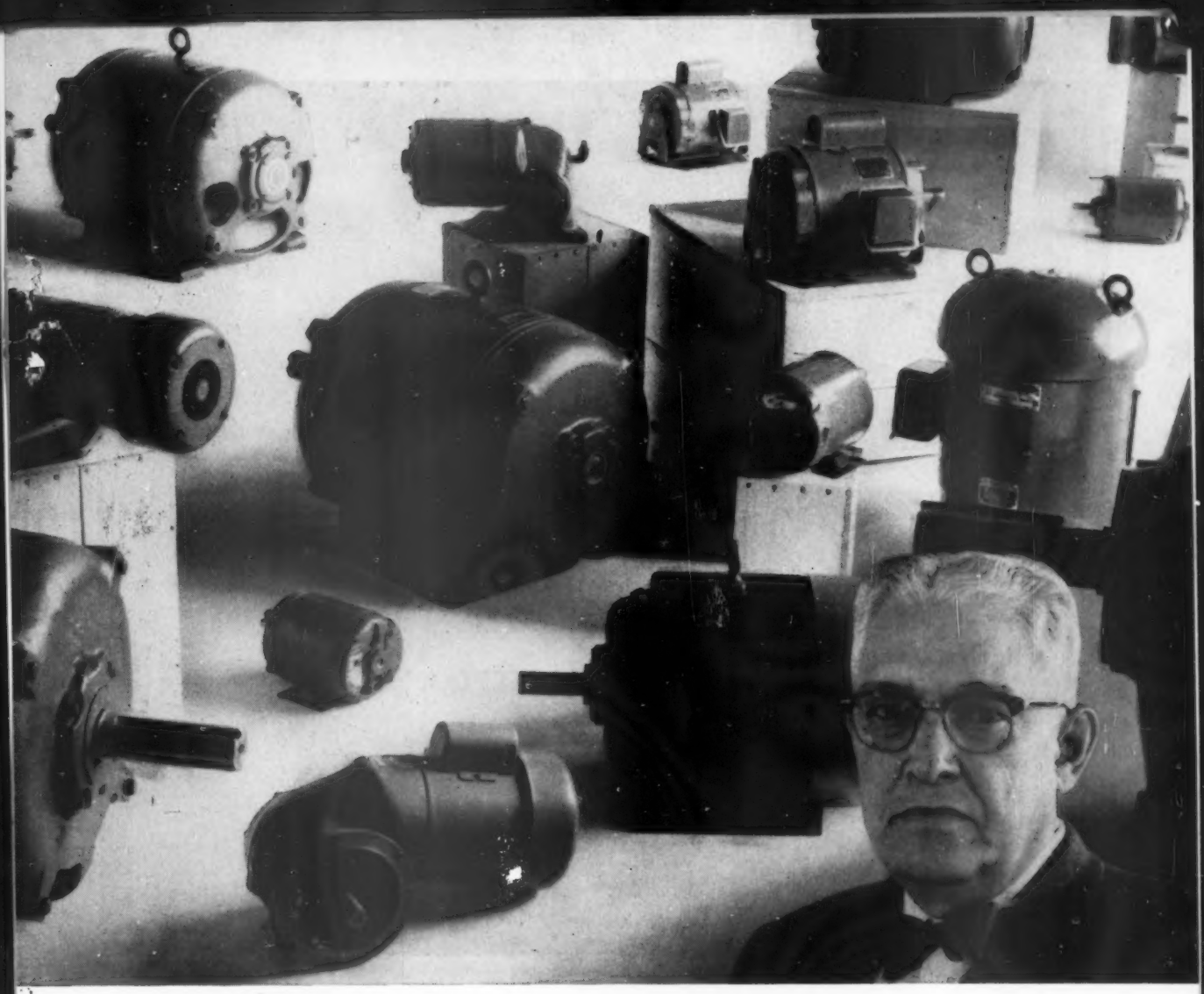
SHELL IRUS FLUID 902

the low-cost, fire-resistant hydraulic fluid

SHELL

For More Information Write No. 151 on Inquiry Card—Page 32

For More Information Write No. 154 on Inquiry Card—Page 32→



Why you get more than a motor from Century Electric

Availability, quality, and know-how—all the things you want in motors. Here's why you get all this and *more* with Century Electric motors:

Availability—Ordering is simple because you can get any motor you need from 1/20 to 400 hp. When you have a wide variety of motors from which to choose, it's easier to get the one you need. Think how you save time when you get answers to all your motor needs in one place.

Quality—Anyone can make claims about high manufacturing standards and quality control. But the best proof of Century Electric quality comes from years of outstanding service. Ask the man who sees every kind of motor sooner or later—the service repair shop man. He'll rate Century Electric motors outstanding.

Application know-how—Century Electric sales engineers know motors. They apply, engineer and think motors and nothing but motors. They can give you on-the-spot help in selecting the right motor—to make sure you get the best one for the job.

Fast answers—You get fast answers to your motor and generator questions from Century Electric. Quotations, models, drawings—whatever you need. When you come to Century Electric you get *more* than a motor. For more information, contact your local Century Electric Sales Office or Authorized Distributor. Century Electric Company, 18th and Pine Street, St. Louis 3, Missouri.

CENTURY ELECTRIC COMPANY

St. Louis 3, Missouri *Offices and Stock Points in Principal Cities*

Century

Adding 270 lbs. of carton-strength with J-M Dutch Brand Strapping Tape

Dutch Brand Strapping Tape multiplies many times the weight a package can carry . . . keeps goods safe during shipment. Tough vinyl backing and strong glass strands give this strapping tape a tensile strength of 270 pounds per inch of width.

One man can apply Dutch Brand Strapping Tape with a simple hand dispenser. The pressure-sensitive adhesive holds quickly, even on irregular surfaces . . . permits using short stripe instead of wrap-around lengths. Dutch Brand Strapping Tape comes from the roll cleanly, without splits. Resists abrasion. Not effected by rot, water, oil, or grease. Can be imprinted if you wish.

Investigate Dutch Brand Strapping Tape. See how it saves time on the line—saves work in packaging, palletizing, and bundling – saves money. See why it makes an ideal "tear-strip." Write today for new "idea book" giving dozens of profitable uses.

JOHNS-MANVILLE PRODUCTS

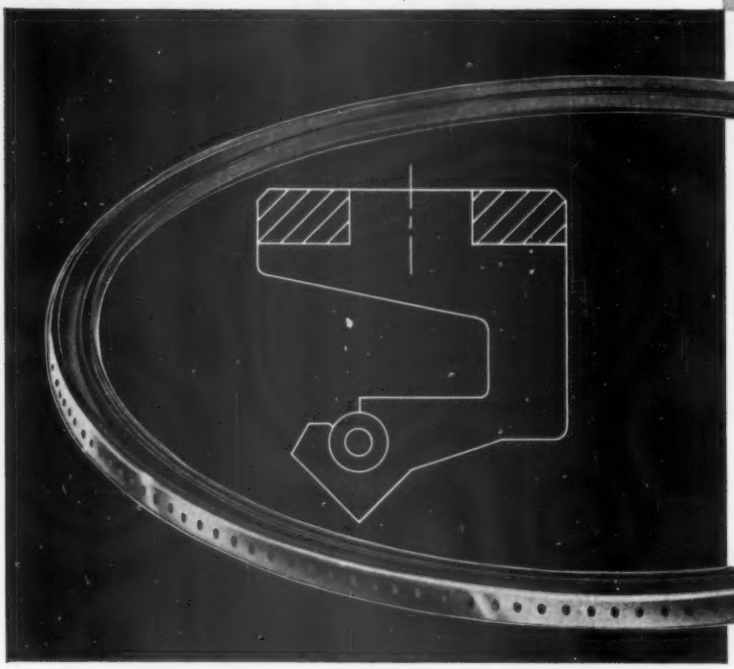
JOHNS-MANVILLE DUTCH BRAND DIVISION
7800 S. Woodlawn Avenue, Chicago 19, Illinois

JOHNS-MANVILLE

For More Information Write No. 155 on Inquiry Card—Page 32

Goes in: *1 minute or less*

Stays in: *6 months or more*



It's Flex-i-Band© – new roll neck seal by C/R

Those are the facts, straight from a hot mill of one of the nation's foremost steel producers. Install this seal in one minute or less, forget it for 6 months or more in rugged hot mill service — much, much longer on cold mill jobs.

More facts: Chicago Rawhide's new Flex-i-Band Seal will not spin in the bore. See that steel O.D.? That's why. It holds the seal tightly in the bore with sure metal-to-metal contact. And the rubber, molded into the perforations cannot shear its bond.

So when your roll necks turn up as high as 5000 surface f.p.m. and the oil side gets hot, you need minimum-wear, maximum life seals to keep out steam, water and scale and keep oil in. Put in C/R Flex-i-Bands the next time you pull the chocks. They go in fast—and *stay in*. Ask your C/R Representative or write us direct.

More automobiles, farm and industrial machines rely on C/R oil seals than on any similar sealing device.

CHICAGO RAWHIDE MANUFACTURING COMPANY
1239 ELSTON AVENUE • CHICAGO 22, ILLINOIS

Offices in 55 principal cities. See your telephone book.

In Canada: Manufactured and Distributed by Chicago Rawhide Mfg. Co. of Canada, Ltd., Brantford, Ontario.

Export Sales: Geon International Corp., Great Neck, New York

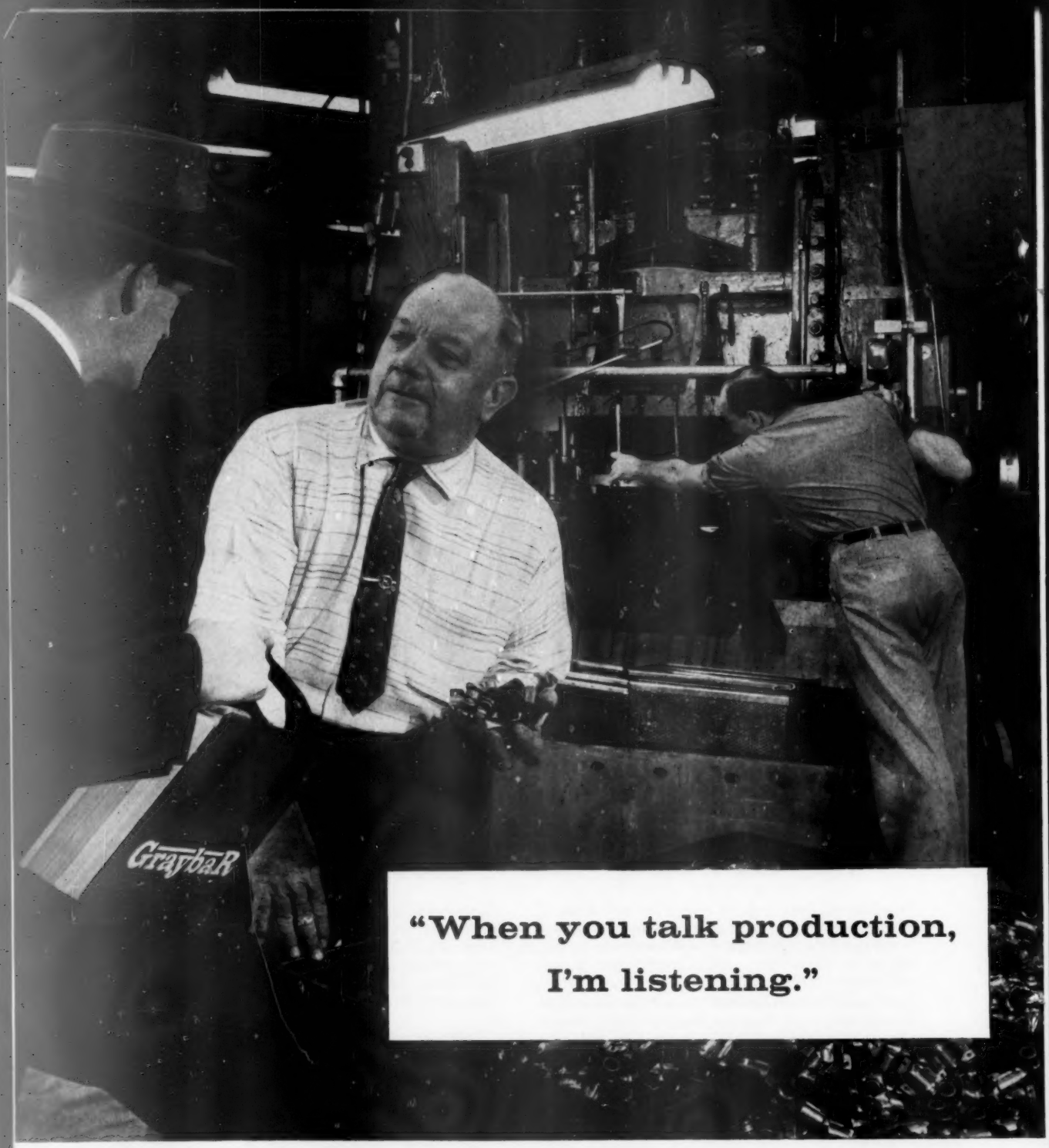
C/R PRODUCTS: C/R Shaft and End Face Seals • Sirvene (synthetic rubber) molded pliable parts • Sirvis-Conpor mechanical leather cups, packings, boots • C/R Non-metallic Gears

Copyright 1959 by Chicago Rawhide Manufacturing Company

OIL SEAL C/R DIVISION

CHICAGO RAWHIDE

For More Information Write No. 155 on Inquiry Card—Page 32



"When you talk production, I'm listening."

First things first . . . production's the subject when the Graybar man sees the production supervisor. This is why electrical equipment the Graybar man recommends, . . . and the know-how he gives, help keep production rolling.

Graybar is *the* leading independent electrical distributor. Next time . . . call Graybar. We'll work with you or your electrical contractor.

GraybaR

ELECTRIC COMPANY, INC.

Everything Electrical GraybaR ELECTRIC COMPANY

420 LEXINGTON AVENUE, NEW YORK 17, N. Y. • OFFICES IN OVER 130 PRINCIPAL CITIES

PURCHASING

The Methods and News Magazine For Industrial Buyers

MAY 25, 1959
VOLUME 46, No. 11

B. P. MAST, *Chairman of the Board*
B. P. MAST, JR., *President*
RAY RICHARDS, *Publisher*

Pulse of Business 7
The P. A.'s Outlook 13
Price Trends 15
Sales, Inventories, New Orders 19
Washington Report 23
Editorial: So What's New? 67
Automation—Puts Pressure on Supply ..... Dean Ammer 69
The Computer Does Everything But Buy ..... Charles G. Schaefer 73
Purchasing's Profit Message 76
Value Buying—The Westinghouse Way ..... A. M. Kennedy, Jr. 78
Traveling Requisition: Step Toward Scientific Purchasing ..... W. Schnorenberg 80
A Buying Guide for Copper Alloys ..... T. E. Veltfort 82
Nuclear Power: Industrial Use Grows Nearer ..... A. N. Wecksler 85
Price Cutting: When Is It Legal? ..... A. W. Gray 87
Forms Forum: Perforated Purchase Order Cuts Typing Time 90
GE Develops Unitized Motor 92
Teaching Old Forms New Tricks 132

REGULAR FEATURES

Information for Your Catalog Files .. 44
Letters to the Editor 50
Purchasing People 57
F.O.B. 60
Products and Ideas 92
Office Equipment and Supplies 132
Association News 142
Employment Service 182
Index to Advertisers 184

EDITORIAL STAFF

Stuart F. Heinritz, Senior Editor
Paul V. Farrell, Editor
Dean Ammer, Executive Editor

Harold C. Barnett ..Assoc. Managing Editor
Mary T. Rogan .....Editorial Assistant
A. W. Gray .....Legal Editor
Walter E. Willets .....Consulting Editor
Robert Gunning ....Readability Consultant
Ned Kellogg ...Associate Managing Editor
Leonard Sloane .....Associate Editor
John Sincere ....Technical Editor—Chicago
A. N. Wecksler .....Washington Editor
T. C. DuMond .....Contributing Editor

ART STAFF

E. Carlton Arink .....Art Director
John Drain .....Associate Art Director

PRODUCTION STAFF

L. E. McMahon .....Production Manager
Barbara Grant .....Production Supervisor

CONOVER-MAST PUBLICATIONS, INC.
EDITORIAL AND EXECUTIVE OFFICES
205 East 42nd Street, New York 17, New York

© 1959 by C-M Business Publications, Inc.
PURCHASING is an independent journal, not the official organ of any association. Established 1915 as "The Purchasing Agent." Consolidated with "The Executive Purchaser." Contents are indexed monthly and annually by the Engineering Index Service and Business Periodicals Index.
PURCHASING is published every-other-Monday by C-M Business Publications, Inc., subsidiary of Conover-Mast Publications, Inc., at 440 Post Road, Orange, Conn. Editorial and executive offices, 205 East 42nd Street, New York 17, New York. Volume 46, No. 11. Subscription rates: United States, U. S. Possessions and Canada: $4.00 per year; single copies 75 cents; elsewhere, $20.00 per year; single copies, $1.00. Second-class postage paid at Orange, Conn. and at additional mailing offices.

SUBSCRIPTION CORRESPONDENCE AND CHANGE OF ADDRESS: Write to Circulation Department, PURCHASING Magazine, 205 East 42nd Street, New York 17 N. Y. Please give title and company affiliation in all correspondence. Notify us promptly of any change of address. Be sure to give old as well as new address; include postal zone number, and new company name and title. Enclose address label from a recent issue, if possible. Since mailing labels are addressed in advance, please allow 3 weeks for change to become effective.

For More Information Write No. 157
←on Inquiry Card—Page 32

JANUARY—Bought anhydrous ammonia at bargain price on supplier's vague quality claims . . .

LATER—Moisture in furnace . . . discoloration of finished parts . . . pickling and polishing necessary . . .

STILL LATER—Oil! Pressure regulators clogged . . . dissociator catalyst poisoned . . . incomplete dissociation . . .

TOO LATE—Parts and profits in scrap pile . . . metal treating line down for replacements and repairs . . .

BE TROUBLE-FREE! Buy the trouble-free ammonia from Armour—purest money can buy!

ARMOUR AMMONIA DIVISION

1355 West 31st Street • Chicago 9, Illinois

Quality ammonia from the most distribution points . . . 171 cylinder stock points, 12 bulk stations!

For More Information Write No. 158 on Inquiry Card—Page 32

Pulse of Business

A Wave Of Prosperity

We're riding a wave of economic prosperity. Even though there may be a slight dip in the third quarter, business activity will probably rebound in the last three months.

It's true that there are still some soft spots in the economy. But even in these areas, there are signs of increased strength.

Gross national product will rise to about $500 billion per year rate in the second quarter. This forecast comes from a group of experts on the authoritative Business Advisory Council of the Commerce Department.

The $500 billion GNP figure represents a $35 billion hike over the first three months of this year which was at a good $465 billion rate. GNP in 1958 totaled $453 billion—and there's no doubt that the figure in 1959 will be considerably higher.

Gross National Product Upsurge

What's behind the upsurge in GNP?

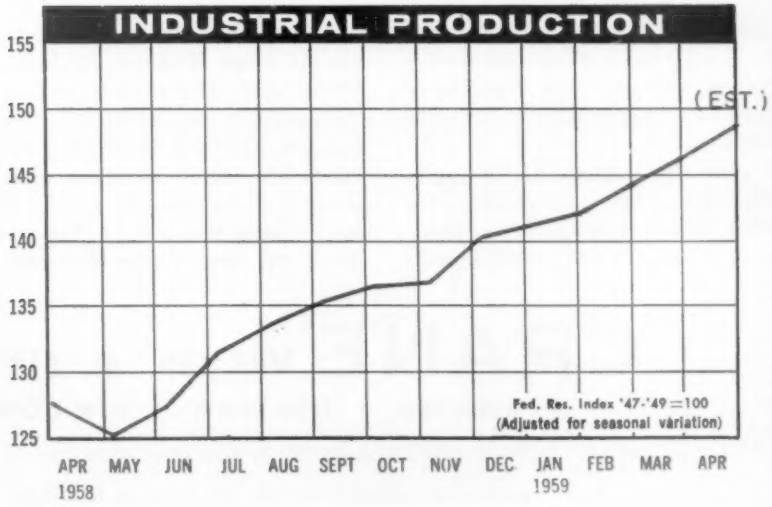
For one thing, personal consumption spending in the first quarter hit an annual rate of $300 billion. This was a gain of $4.1 billion over fourth quarter of 1958.

The largest gain showed up in increased buying of nondurable goods. Durable goods and services also rose. However, personal savings remained the same as the previous quarter, despite the increase in disposable personal income.

Gross private domestic investment also rose in the first three months. The increase was $6.9 billion to an annual rate of $68.5 billion.

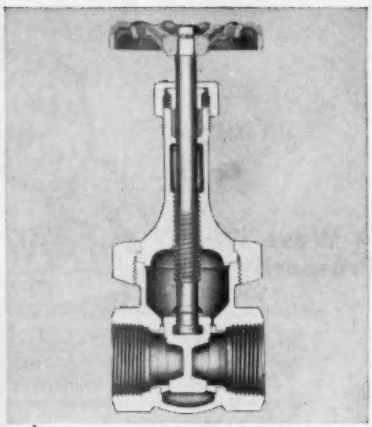
This segment includes new construction—both industrial and residential—new equipment, and changes in business inventories. Virtually every category of private investment contributed to the increase.

(Turn Page)



The upward climb of the Federal Reserve Board's Industrial Production Index continues. It is now at another all-time high.

Expanded-type body rings. Made from Crane Exelloy—a 12% chromium stainless steel. Provide a hard surface that resists abrasive damage, indentation and scoring by foreign matter. Rings are rolled in, can't work loose. Seating wear is taken by easy-to-replace bronze disc.



Quality in every detail inside and out. In rising and non-rising stem patterns—¼ to 3 inches—screwed ends. Working pressures: 200 lb. steam, 550° F.; 400 lb. non-shock cold water, oil, gas and air, 150° F.

Cylindrical body shape. Proved on high-pressure steel valves. Increases body strength without adding bulk. Distributes pressure uniformly. Reinforces seating area against distortion and chance for leaks.

12% chromium stainless steel seat rings make Crane 200-pound bronze gates last longer

Here is a close-up of Crane quality that shows you why these 200-pound bronze gate valves perform more dependably than ordinary bronze valves, with less maintenance.

For example, instead of integrally cast seats, they have long-wearing 12% chromium stainless steel body rings. Rings are rolled in... can't work loose in service. This also prevents leakage around rings. The quickly replaceable bronze disc takes normal seating wear.

Crane 200-pound bronze valves are competitively priced with bronze valves which do not have these and other important features. Why pay for less than Crane offers you? For complete facts, see your Crane Representative.

Write for Circular AD-2285. Gives complete technical data on both rising and non-rising stem patterns.

CRANE® VALVES & FITTINGS

PIPE • PLUMBING • HEATING • AIR CONDITIONING

Since 1855—Crane Co., General Offices: Chicago 5, Ill. Branches and Wholesalers Serving All Areas

For More Information Write No. 159 on Inquiry Card—Page 32

PRODUCTION

The area of inventories is perhaps of greatest interest to the purchasing agent. Inventory accumulation in the first quarter was at a seasonally adjusted annual rate of $4 billion, says the Council of Economic Advisors. And Commerce Department officials also expect a further rise in the second quarter.

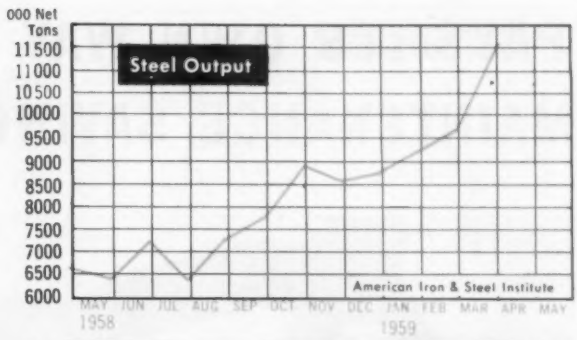
Compare this with last year's record, when inventories were liquidated to the tune of $4.7 billion. In the first quarter—the worst of the recession—liquidation took place at an annual rate of $8.2 billion.

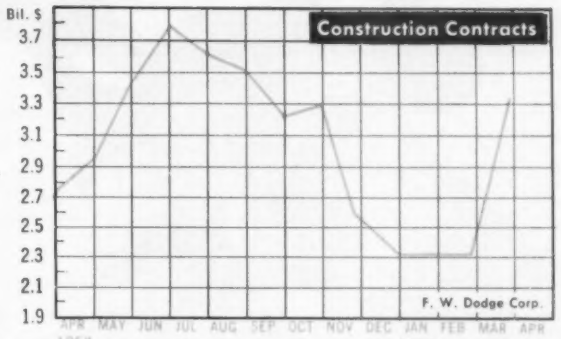
Of course, a good deal of the inventory accumulation during the first half of '59 has been in anticipation of a possible steel strike. Nevertheless, much of it has been the result of boosting sharply depleted stocks as the recovery gathered momentum.

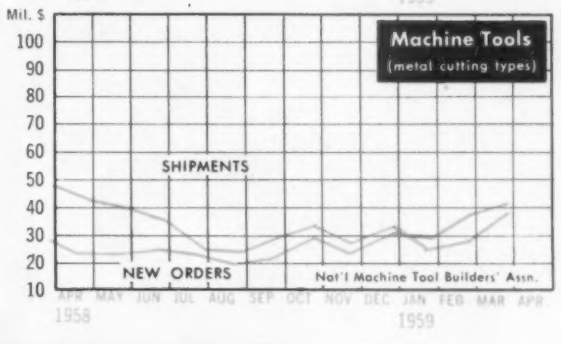
On the labor front, the steel negotiations are still the big news (see p. 23). But recent employment and unemployment statistics support the belief that—although lagging somewhat behind the general business recovery—the job situation is improving.

According to the Departments of Commerce and Labor, employment at mid-April totaled 65.0 million, up 1.2 million from the previous month, and a new record for the month of April. The all-time high was notched in July 1957, when 67.2 million men and women were employed.

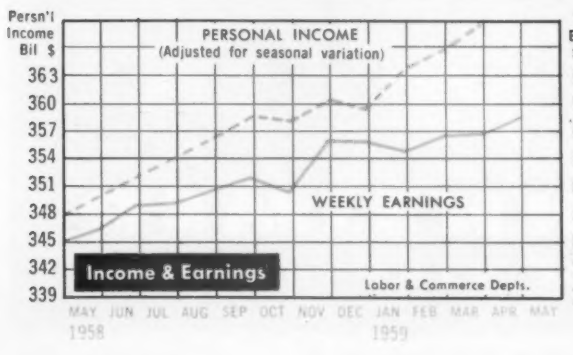
Unemployment fell by 735,000 to 3.6 million in April of this year. This sharp drop is specially significant for Secretary of Labor







LABOR



SEE WHY
LQ600®
PAYS ITS OWN WAY IN MAINTENANCE SAVINGS

One look at the precision-machined alloys in the LQ-600 Valve helps explain its maintenance-saving performance. Seats and discs are made of Brinalloy®, the exclusive Lunkenheimer alloy that actually outwears 500 Brinell Stainless Steel or Case-Hardened Stainless exceeding 1000 Brinell. Add Stemalloy®, the most durable stem material ever put into a valve, and you have the two big reasons why LQ-600's are setting new standards of performance everywhere they are installed.

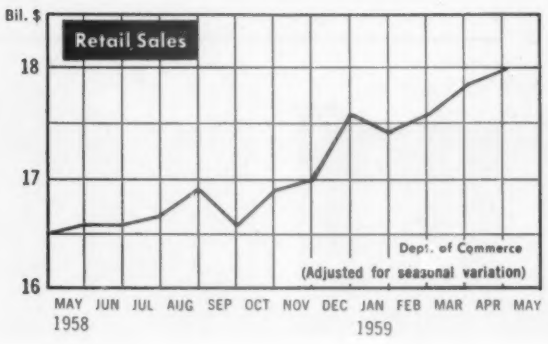
Compare this performance to any other valve in its class. Call your Lunkenheimer Distributor for a test installation . . . or write The Lunkenheimer Co., Cincinnati 14, Ohio.

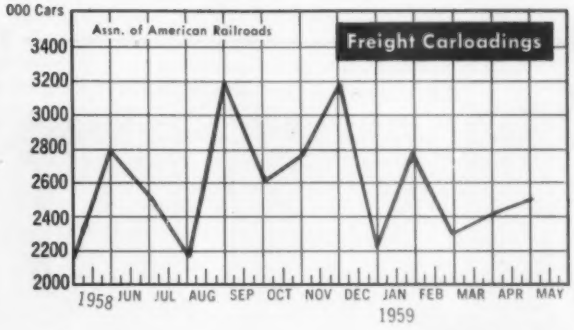
LUNKENHEIMER QUALITY

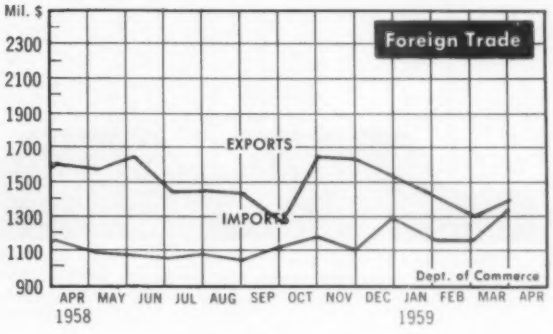
LUNKENHEIMER®
THE ONE *Great* NAME IN VALVES

For More Information Write No. 160 on Inquiry Card—Page 32

TRADE







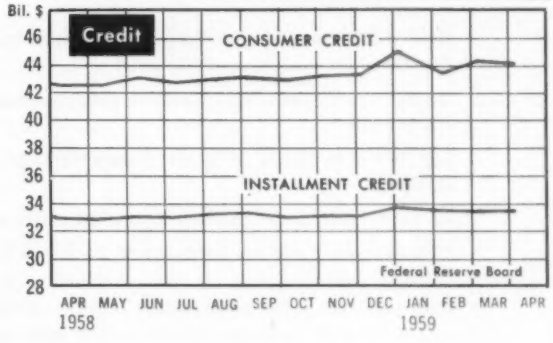
Mitchell—who had offered earlier to eat his hat on the steps of the Labor Department if unemployment was not below 3 million by October.

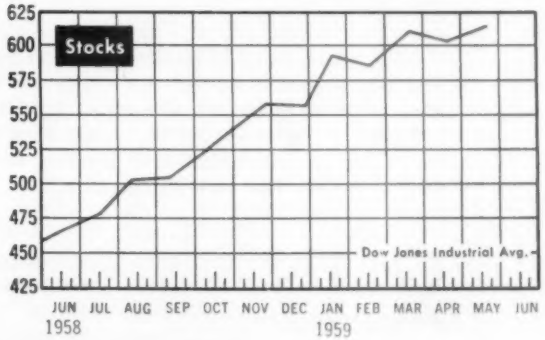
In other business areas, the steel operating rate has been above 90% for many weeks. It promises to remain at that level until at least June 30, when we'll know whether there will be a strike.

Automobile production for the first four months of the year was 2.2 million—up from 1.6 million in the similar period last year. In April alone, 578,825 cars were assembled, marking the best April since 1955. May operations should also top the 500,000 level.

Private housing starts are increasing, as spring weather makes construction easier. Starts in March rose to a seasonally adjusted annual basis of 1,390,000, after two months of decline. Public construction also rose.

FINANCE

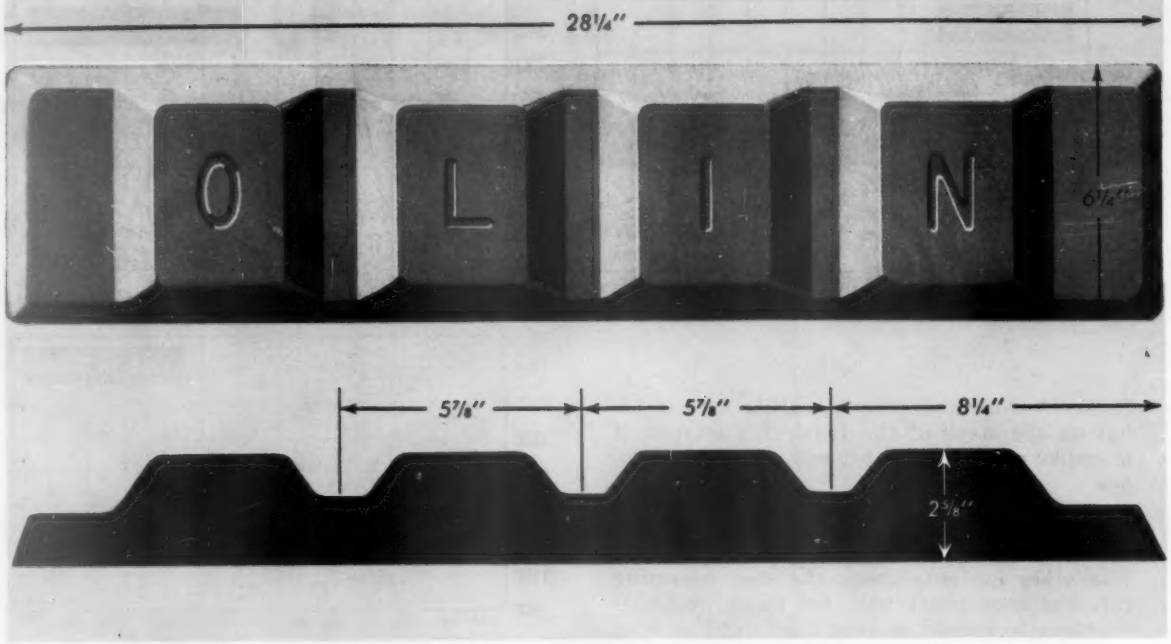




Naturally, this increased activity becomes more important to the businessman when it's reflected in his sales figures. And the predictions for 1959 are most optimistic. A government survey shows that manufacturers expect a sales increase in 1959 of 9% over last year. Producers of durables predict a 12% rise, while nondurables manufacturers foresee a rise of 6%.

If first quarter figures are any indication, profits should also be up substantially this year. That's good news for P.A.'s and for businessmen everywhere.

YOU'LL FIND GOLD IN THIS NEW 25 POUND OLIN ALUMINUM INGOT!



Now, a 25 pound ingot from Olin Aluminum. Consider its advantages for you!

Smaller size. Easier to store, easier to gauge metal supply for closer control.

Lighter weight. 25 lbs. vs. 30 lbs. Greatly increases handling efficiency.

Deeper notches. Easier to break. Saves time, eases work load.

More sections. 3 notches, 4 sections vs. 2 notches, 3 sections. Reduces waste.

Same price per pound as 30 lb. ingot. Olin Aluminum is the only prime supplier producing a 25 pound ingot, and at no additional cost.

America's new major aluminum producer, Olin Aluminum, is also the newest source of profitable ideas for foundrymen. Take advantage of it. Contact your nearby Olin Aluminum Sales Office or Authorized Distributor of casting alloys. Ask for our pig and ingot technical data bulletin. Metals Division—Olin Mathieson Chemical Corporation, 400 Park Avenue, New York 22, New York.

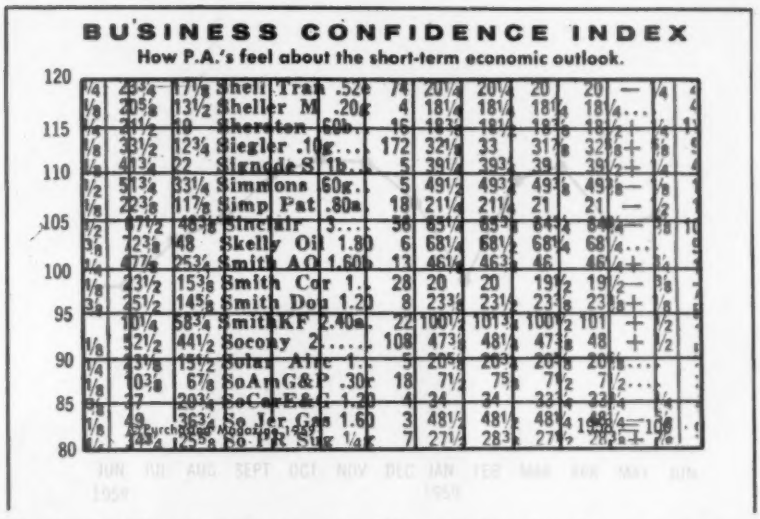
OLIN ALUMINUM

Symbol of New Standards of Quality and Service in the Aluminum Industry

For More Information Write No. 161 on Inquiry Card—Page 32

The P.A.'s Outlook

- **Purchasing Agents Generally Optimistic**
- **Illinois P.A. Notes 'Business Pick-Up'**
- **N.A.P.A., Local Assns. Stress Strike Threat**



Purchasing Magazine's Business Confidence Index—based on a cross-section of industrial purchasing agent opinion throughout the country—rose a point in May to 106 (1958=100). This sensitive indicator shows that P.A.'s are optimistic about the business outlook during May, June, and July.

PURCHASING agents continue to be optimistic over the short-term economic outlook.

This optimism is shown by Purchasing Magazine's Business Confidence Index, which rose a point to 106 (1958—100) in May. Over 70% of the purchasing executives polled think that the economic climate in the next three months will be better. Around 20% believe conditions will remain the same, while only 10% think business will get worse.

Increased Quotations

The purchasing agent for an Ohio machine company notes "our volume of quotations has increased quite substantially in the last few weeks." A buyer for an Illinois corporation says "our business is definitely picking up. This should be a better year than 1957—our best in 60 years."

And a New England purchasing executive reports "our general picture is one of continuing pick-up in diversified manufacturing fields. This is not caused solely by a steel strike threat."

However, the threat of a steel walkout when labor contracts expire on June 30 is stressed in reports of purchasing agent associations. The business survey reports of the National Association of Purchasing Agents and the Cleveland and Pittsburgh groups indicate concern about a possible steel strike. But, at present, business is good.

The N.A.P.A. says 56% of its members surveyed report gains in production. This is a 9% improvement over the previous month—the biggest gain in 4 years.

Hedge Against Strike

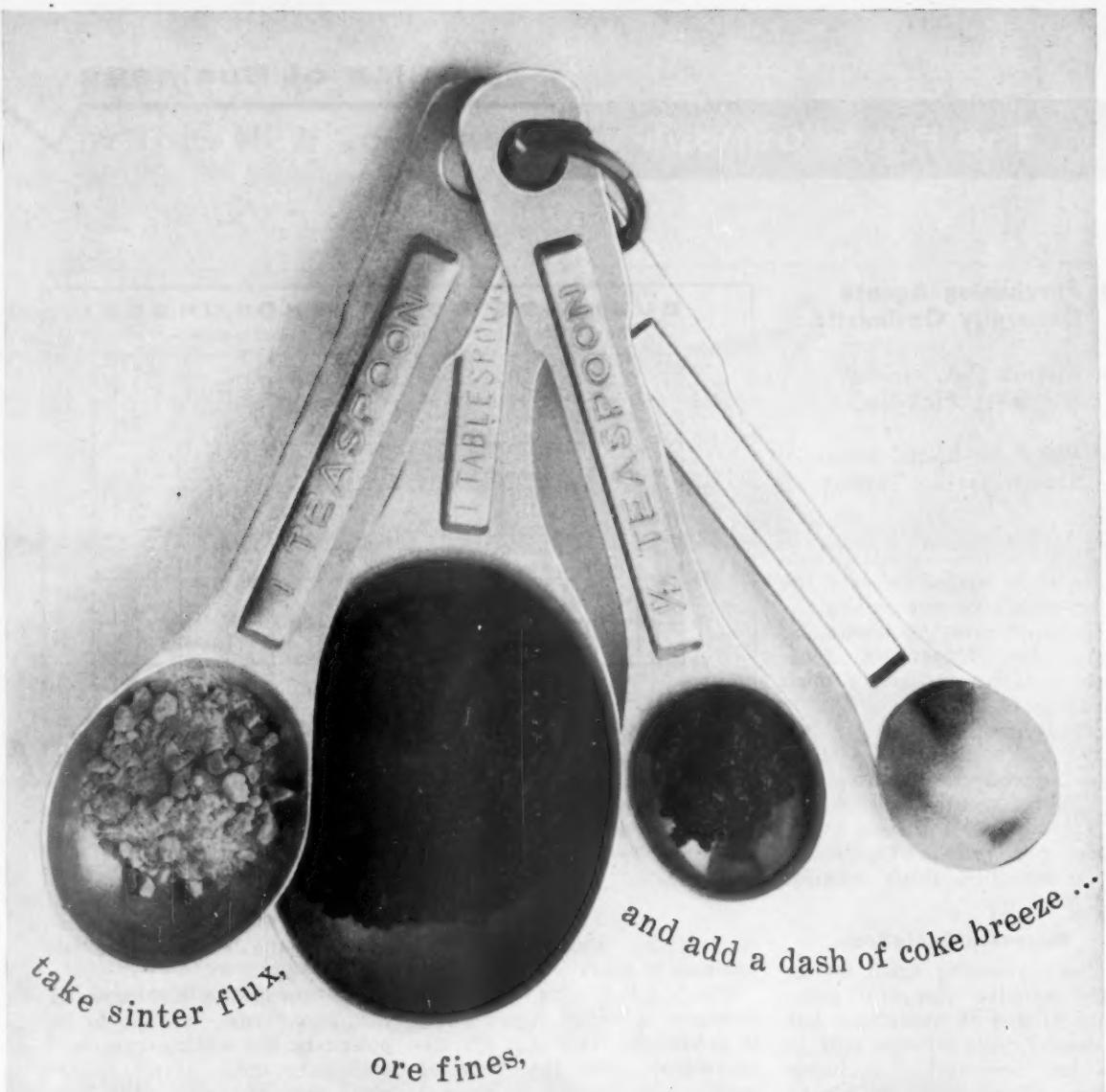
The N.A.P.A. adds: "with practically no exceptions, purchasing executives frankly explain their inventory build-up as a hedge against the anticipated steel strike. However, a number indicate that their build-up may not be as planned, because of high usage resulting from increased production schedules."

The Cleveland group seconds this opinion: "Programs to increase inventories, due to the threat of a steel strike, continue but some members report stockpiling practically impossible because of the increase in business."

The association also says its members "seem to want to be optimistic but will reserve their comments until later." It reports that the rising trend in commodity prices has somewhat stabilized and employment is slightly improved.

The Pittsburgh association says 49% of its members have larger inventories, compared with 39% the previous month. Over 45% report that stocks are the same and 5% note smaller stocks. Corresponding figures for the previous month were 49% and 12%, respectively.

Around 70% of the association's members surveyed have larger order backlogs. And about the same percentage report that their volume of business is better than it was the month before.



That's exactly what Inland's technical chefs will do when its giant, new sintering plant is completed in June. A single day's mix—4300 tons of iron ore particles, 500 tons of crushed limestone, 250 tons of fine coke—will bake a cake of clinkers which can be fed directly into blast furnaces. Result—better, faster reduction of raw iron ore to pig iron, blast furnace production upped 10%—*more and more Inland steel to feed the hungry production lines of fast-expanding Mid-America manufacturing!*

Building Today with an Eye to Tomorrow

INLAND STEEL COMPANY
30 West Monroe Street • Chicago 3, Illinois
Sales Offices: Chicago • Davenport • Detroit • Houston • Indianapolis
Kansas City • Milwaukee • New York • St. Louis • St. Paul

Other Members of the Inland Family
JOSEPH T. RYERSON & SON, INC.
INLAND STEEL PRODUCTS COMPANY
INLAND STEEL CONTAINER COMPANY*
INLAND LIME & STONE COMPANY* *Division

For More Information Write No. 162 on Inquiry Card—Page 32

Price Trends

- **Copper Buying Tapers As Production Rises**
- **World Lead and Zinc Production to be Cut**

PURCHASING agent interest in nonferrous metals has been mixed in recent weeks. Lead demand has dropped off, zinc buying continues to be generally good, and copper purchasing has been quiet.

Here's the current picture in some of the more important raw materials:

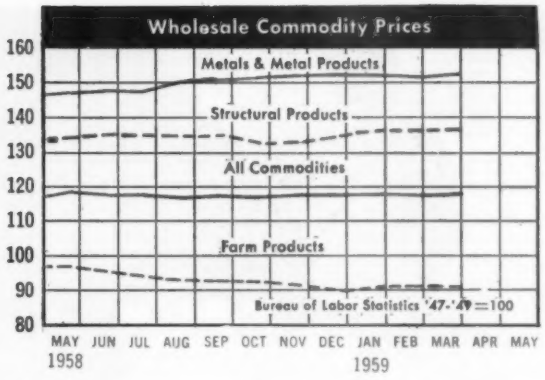
Copper: The possibility of a strike at the major mines and refineries after June 30 still hangs over the heads of copper suppliers. Yet P.A.'s have been relucant recently to go overboard on any new buying spree.

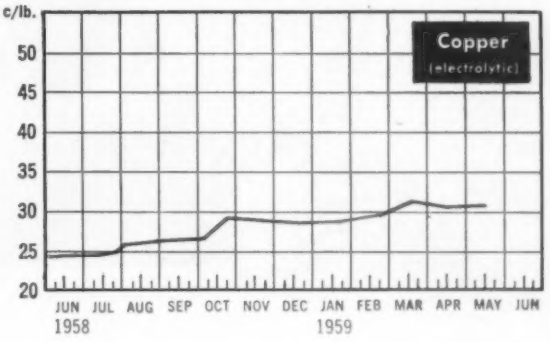
Among the reasons for this hesitancy are: the buying surge six or seven weeks ago to build up inventories; the heavy production schedule of many copper suppliers; and the indications that current world consumption is less than output.

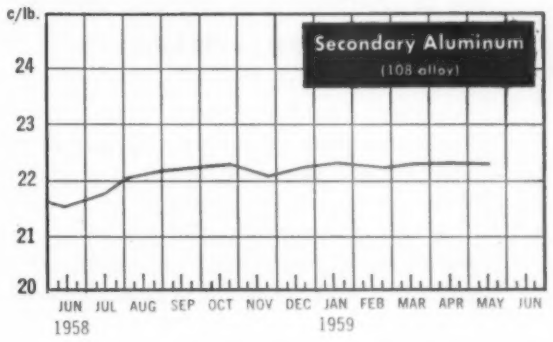
Aluminum: Shipments of aluminum to P.A.'s in the first half of the year will probably be around 40% greater than in the same period of 1958. Very few of the sales thus far in 1959 have been to the government—while last year a considerable tonnage was sold to Uncle Sam.

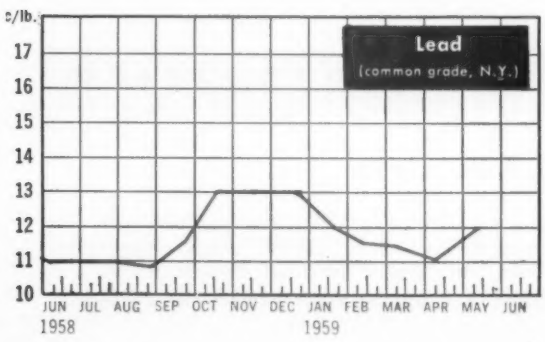
March deliveries of both sheet and foil rose from the previous month. Sales by the three major aluminum suppliers in the first quarter were up a whopping 31% in dollar volume.

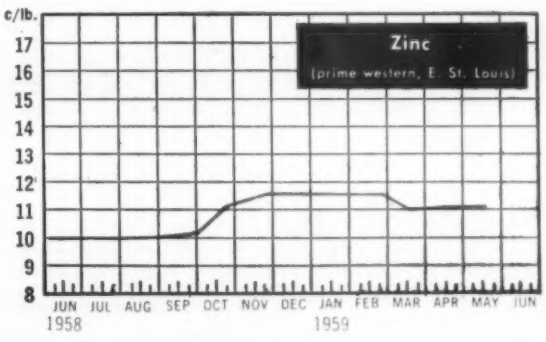
(Turn Page)











WHY LEADING MANUFACTURERS INSIST ON INLAND CONTAINERS

"We've found the best shipping containers cost the least in the long run."

All too often "bargain" shipping containers boomerang. That's when they increase cost by poor performance on the packing line, in the warehouse and in transit instead of producing the savings they seem to promise.

For this reason manufacturers of every conceivable kind of product insist on Inland quality containers. Inland containers are custom-designed and precision-manufactured to keep packaging labor costs down, provide maximum warehousing efficiency, minimize shipping weight and safeguard that priceless asset—customer good will—by assuring factory-perfect condition when delivered.

You can always depend on Inland to furnish the *right* container for your product. Your nearby Inland Package Engineer is a corrugated shipping container specialist . . . call him for every requirement.

CALL YOUR INLAND PACKAGE ENGINEER

INLAND BOXES

INLAND CONTAINER CORPORATION

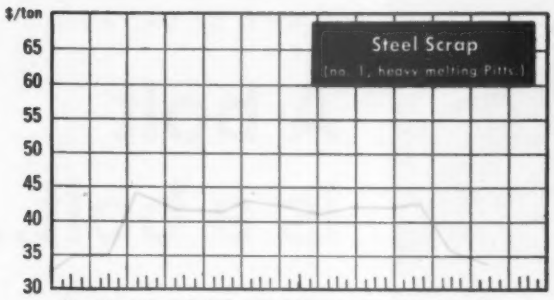
Corrugated Fiber Boxes

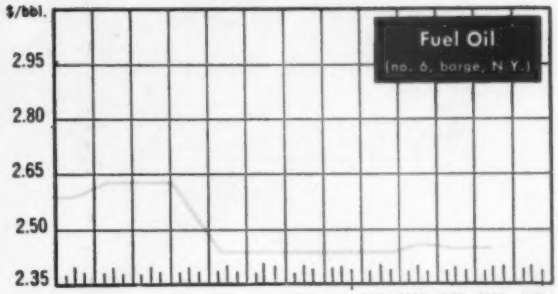
Mills: Macon, Georgia; Rome, Georgia. **PLANTS AND SALES OFFICES:** Indianapolis, Indiana; Middletown, Ohio; Milwaukee, Wisconsin; Evansville, Indiana; Detroit, Michigan; Macon, Georgia; Erie, Pennsylvania; Ashtabula, Ohio; Orlando, Florida; Rome, Georgia; Biglerville, Pennsylvania; Dallas, Texas; Chicago, Illinois; Louisville, Kentucky.

Other Sales Offices in Principal Cities · Consult Your Telephone Directory

For More Information Write No. 163 on Inquiry Card—Page 32

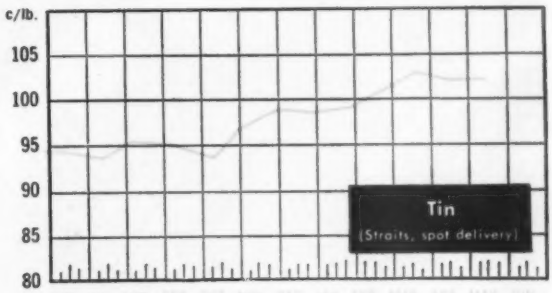
Price Trends





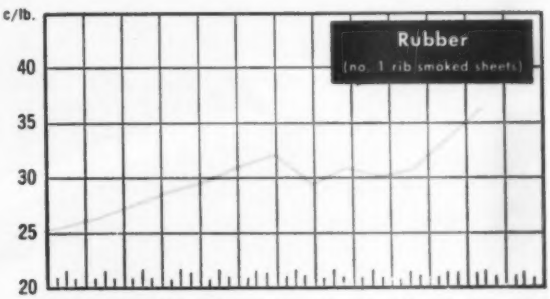
Industry production is currently over 80% of capacity.

A Subcommittee of the House Select Committee on Small Business is planning to hold hearings soon on the availability of aluminum for small companies. Aluminum imports to this country will also be studied.



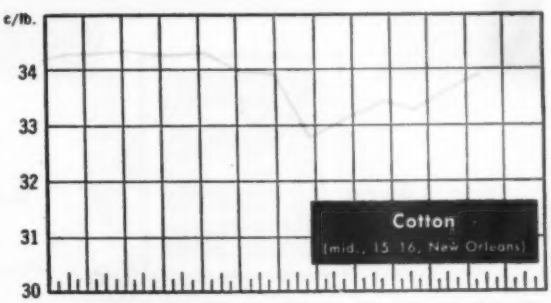
Zinc: A voluntary reduction in production and exports of zinc—as well as lead—has been announced following a meeting of a United Nations special committee. Twenty nations, including the United States, attended the conference at U.N. headquarters in New York.

In the last six months of 1959, 52,000 fewer tons of zinc will be mined and exported than was originally planned. Otherwise, the year's surplus would have been 120,000 tons.

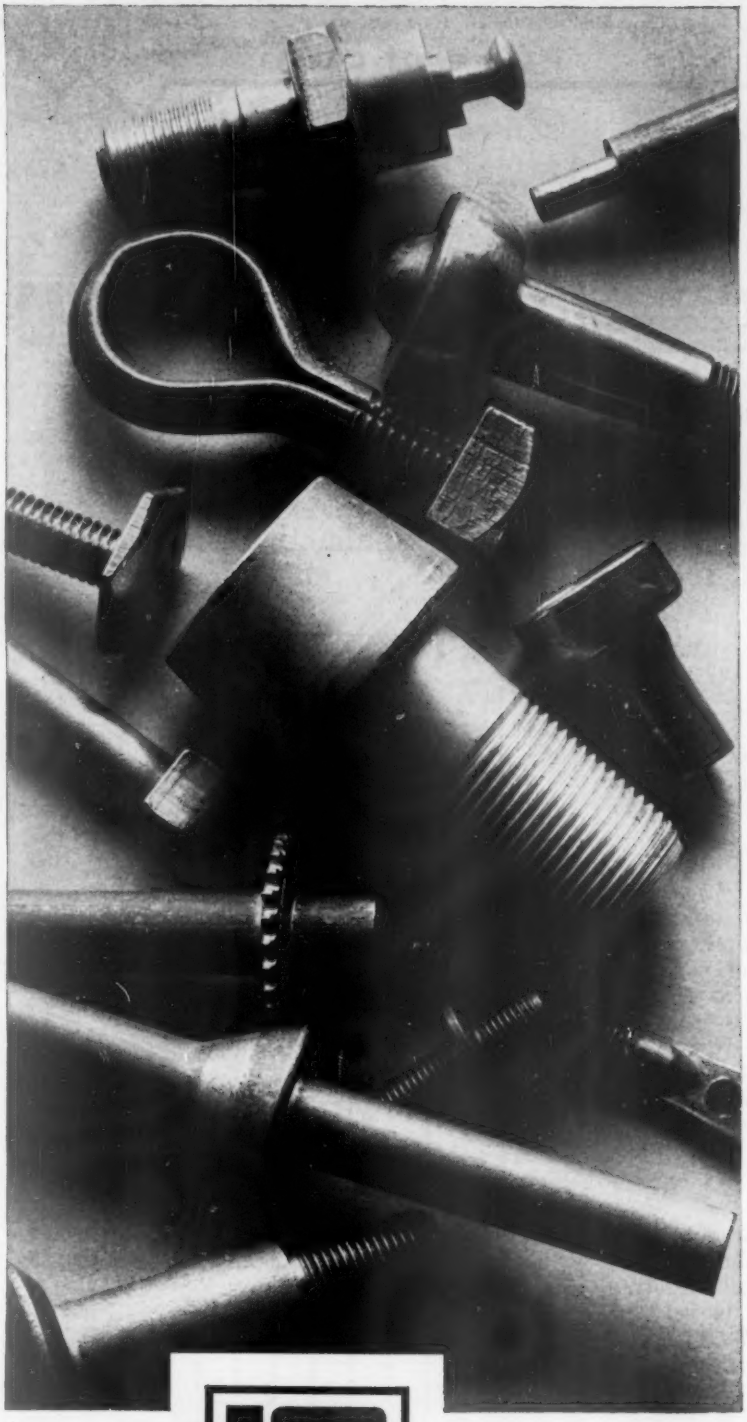


Lead: World stocks of refined lead held by vendors increased still further in March. This rise came despite the increase in shipments to purchasing agents during this period.

One large producer—American Metal Climax, Inc.—has reduced its Mexican production for world markets to 6500 tons per year. A company spokesman says the move has been designed "to bring supply and demand into balance."



Tin: Recent selling by the Buffer Pool of the International Tin Agreement has edged tin prices upward. Indications are that, unless conditions change appreciably, the price of tin will continue to rise in the next few months.



A bolt is a bolt... or is it?

At L & S, "bolts" often take on strange shapes...such as those shown here. Why? Because customers need them that way...to solve a specific fastening problem. Strange thing, though—what may seem very "special" to you may require only a slight modification of something we've already made. We have the know-how *and* the equipment to design it, produce it, economically! Send us your prints or problems.

L & S Fastening Engineering helps you "tighten up" on assembly costs

LAMSON & SESSIONS

5000 TIEDEMAN ROAD • CLEVELAND, OHIO

Plants in Cleveland and Kent, Ohio • Chicago and Birmingham

For More Information Write No. 164 on Inquiry Card—Page 32

Sales, Inventories, Orders

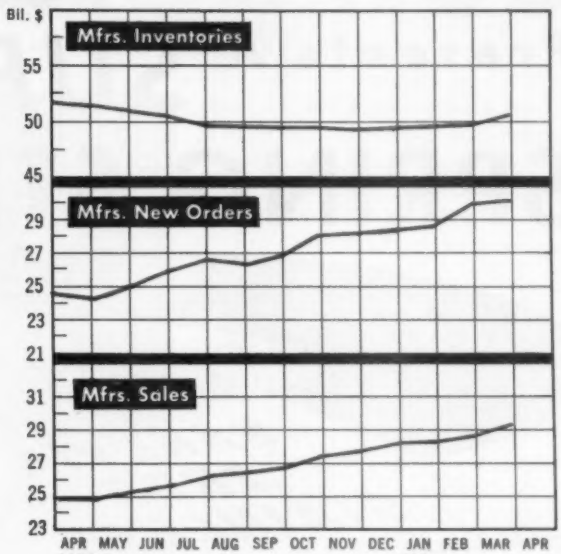
• $400 Million Inventory Gain Led by Steel

INVENTORIES of manufacturers continued to rise in March, as P.A.'s built up their steel stocks. New orders and sales also registered more than seasonal gains.

Manufacturers' inventories were $50.3 billion, according to the Department of Commerce. This was a $400 million hike from February—the same increase as that of the previous month.

New orders went up $300 million to $30 billion. The bulk of the new business flowed to durable goods producers, especially those making electrical and non-electrical machinery and transportation equipment.

Sales rose $600 million to $29.1 billion. Gains came mostly from the automobile, steel, and textile industries.



Dept. of Commerce—Seasonally adjusted

	1958			1959		
	Mar.	Nov.	Dec.	Jan.	Feb. (r)	Mar. (p)
Manufacturers' Sales Seasonally Adjusted (Millions of Dollars)						
All Manufacturing Industries	24,931	27,467	28,135	28,143	28,481	29,074
Durable-goods industries	11,670	13,295	13,613	13,541	13,870	14,343
Primary metal	1,635	2,113	2,256	2,230	2,421	2,565
Fabricated metal	1,332	1,553	1,586	1,537	1,526	1,547
Machinery	3,685	3,951	3,975	4,017	4,131	4,228
Transportation equipment	2,708	3,040	3,184	3,167	3,168	3,260
Lumber and furniture	759	891	884	879	894	898
Stone, clay, and glass	586	667	655	668	677	745
Nondurable-goods industries	13,261	14,172	14,522	14,602	14,611	14,731
Food and beverage	4,333	4,436	4,481	4,522	4,479	4,460
Tobacco	387	378	414	428	428	414
Textile	999	1,102	1,079	1,102	1,140	1,214
Paper	885	936	955	942	977	985
Chemical	1,745	2,023	2,004	1,932	1,930	1,997
Petroleum and coal	2,597	2,819	2,970	3,043	3,037	3,041
Rubber	396	472	518	508	490	497
Manufacturers' Inventories Seasonally Adjusted (Millions of Dollars)						
All manufacturing industries	52,009	49,297	49,209	49,503	49,861	50,291
Durable-goods industries	29,864	27,877	27,863	28,117	28,373	28,795
Primary metal	4,342	4,058	4,100	4,180	4,280	4,363
Fabricated metal	2,918	2,896	2,927	2,993	3,069	3,119
Machinery	9,920	8,954	8,914	9,030	9,063	9,144
Transportation equipment	7,113	6,576	6,574	6,578	6,608	6,793
Lumber and furniture	1,794	1,730	1,740	1,702	1,702	1,718
Stone, clay, and glass	1,233	1,223	1,200	1,207	1,201	1,195
Non-durable goods industries	22,145	21,420	21,346	21,386	21,488	21,496
Food and beverage	4,685	4,676	4,646	4,669	4,740	4,757
Tobacco	1,885	1,861	1,904	1,881	1,902	1,877
Textile	2,627	2,456	2,469	2,487	2,476	2,462
Paper	1,454	1,419	1,443	1,451	1,459	1,468
Chemical	3,877	3,767	3,748	3,764	3,744	3,754
Petroleum and coal	3,510	3,324	3,264	3,264	3,273	3,269
Rubber	1,069	1,018	994	1,013	1,032	1,035
Manufacturers' New Orders Seasonally Adjusted (Millions of Dollars)						
All manufacturing industries	24,758	27,797	28,365	28,502	29,702	30,023
Durable-goods industries	11,488	13,574	13,673	13,900	14,918	15,149
Nondurable-goods industries	13,270	14,223	14,692	14,602	14,784	14,874

(r) Revised. (p) Preliminary.

New Star Performer In The Sandvik Line

SANDVIK

Presents A SUPER SPRING STEEL

Sandvik's new 2R25 is a superior grade of stainless spring steel which goes far beyond the capabilities of ordinary spring steels. It was developed for applications where performance outranks cost.

This new steel is a prime example of Sandvik's ability to combine several advantageous properties in one metal.

Mechanical Data on 2R25 —

TENSILE STRENGTH RANGE — Hard Rolled 242,000 • 270,000 or 299,000 PSI Heat Treated 270,000 • 299,000 or 327,000 PSI

ELASTIC LIMIT (.01% Proof Stress) — From 156,000 to 192,000 PSI according to size and finish

Sandvik 2R25 is exceptionally tough and resilient, much more formable than hardened and tempered steel, has up to 10 times the fatigue life of ordinary carbon spring steel and has excellent corrosion resistance under varying atmospheric conditions.

MODULUS OF ELASTICITY — 27.7 to 35.6 x 10^6 PSI according to size and finish

SIZES (with extremely close tolerances) Thickness — .0016" to .035" Width — .039" to 3.94"

For further information on Sandvik 2R25, contact your nearest Sandvik office

Sandvik stocks a wide variety of qualities and sizes of cold rolled specialty strip steels. In addition Sandvik has rolling, slitting, edge-filing and hardening and tempering facilities. *Send for your copy of this free brochure* which gives specific data on the leading types of Sandvik steels.

SANDVIK STEEL, INC.

1702 Nevins Road, Fair Lawn, N. J.
Tel. SWarthmore 7-6200 • In N. Y. C. ALgonquin 5-2200
***Branch Offices:* Cleveland • Detroit • Chicago • Los Angeles**
SANDVIK CANADIAN LTD. P.O. Drawer 1335, Sta. O. Montreal 9, P. Q.
***Works:* Sandviken, Sweden**

SS-179

For More Information Write No. 165 on Inquiry Card—Page 32

Lincoln

WELDYNAMICS

NEWS ABOUT ARC WELDING AT WORK CUTTING COSTS

Press frame is typical of fabrication done at Paterson-Leitch.

WELDING COST SURVEY SHOWS WAY TO BIG SAVINGS AT PATERSON-LEITCH

A cost reduction survey at The Paterson-Leitch Company of Cleveland, one of northern Ohio's largest steel warehouses and fabricators, indicated possible savings of almost $22,000 a year.

The survey made on two typical types of welds indicated that phenomenal savings could be realized by several simple procedural changes to eliminate over-welding, and by switching from DC to AC machines to achieve the best performance from the Jetweld iron-powder electrode being used.

P. L. Holden, a Lincoln welding engineer, spotted the difficulty on one of his regular visits to the plant—offered to make the survey and received the approval of Mr. L. M. Hardnack, Plant Superintendent.

Mr. Hardnack stated, "Because our work is so varied, it's hard to pin down costs on every operation. However, we have tried to follow Mr. Holden's recommendations, and I would be safe to say that we have realized at least 60% of the predicted benefits."

Lou Hardnack, Plant Superintendent, "We appreciate the professional engineering services of the Lincoln man."

For help with procedures and cost reduction ideas call your Lincoln welding engineer today.

NEW IDEALARC WELDER TAILORED TO YOUR NEEDS

The new Lincoln Idealarc "TM" welder has been designed to meet the needs of any shop.

The key to the "TM" model's versatility is a wide range of options that expand the applications for the machine.

Basically the Idealarc "TM" is a transformer type AC or AC/DC machine, depending upon the choice of the owner, with a moveable core reactor current control. Many new features have been built into the machine to improve welding characteristics, increase efficiency and to protect the machine.

Special features such as remote current control, remote selector switch control, ML-2 power pack, 115 volt push-button control, and others, are optional to adapt the machine to any welding requirement. Some of the options are available in kit form and can be installed in the field.

These new Idealarcs are available in 300, 400, 500 and 650 amp sizes.

Bulletin 4607.1 has all the details and specifications. A copy may be obtained by writing The Lincoln Electric Company.

THE LINCOLN ELECTRIC CO.
Dept. 1403 • Cleveland 17, Ohio
The World's Largest Manufacturer of Arc Welding Equipment

NO MINIMUM CHARGE

All orders receive top attention. They are handled by bearing experts and there is no minimum charge.

BOUND BROOK

BOUND BROOK OIL-LESS BEARING CO., EST. 1883, BOUND BROOK, N. J.

Pioneer in

POWDER METALLURGY BEARINGS + PARTS

Washington Report

Steel Negotiations In the Spotlight

GOVERNMENT AGENCIES are marking time, with a watchful eye on the steel wage negotiations. The Administration—leading off with President Eisenhower and supported down the line by members of the Cabinet—continues to warn that any agreement leading to an increase in the price of steel would not be in the public interest.

The wage negotiations will probably drag out until the end of next month. Negotiators on both sides try to dispose of all the issues of the steel contract other than hourly wages first.

The final outcome is likely to be put off until the deadline—June 30. The only clear outlook now is that the wage settlement is likely to be moderate. The immediate impact of the settlement on steel prices will be an imperceptible adjustment within certain lines, while the steel companies proceed to determine what their new cost structure will be.

The unknown factors of the final wage settlement include the question of whether agreement will be reached without a work stoppage. However, it is expected that with or without a strike, the rate of steel production in the last half of the year will be sharply below the booming levels of the first six months.

Without a strike the rate of steel manufacture is likely to drop to between 60 and 70% of capacity during the third quarter and then pick up to around 75% or 80% in the final quarter. These projections are based on continued business recovery.

If the industry is shut down, steel mills may not reopen quickly. The shutdown will work down industry-held inventories.

How Much Inventory?

There are no hard facts on how much steel is in industrial inventory. Some steel producers have speculated on a figure, but their projections differ. But most estimates are that some 9 million tons of steel produced in the first half of this year went into inventory.

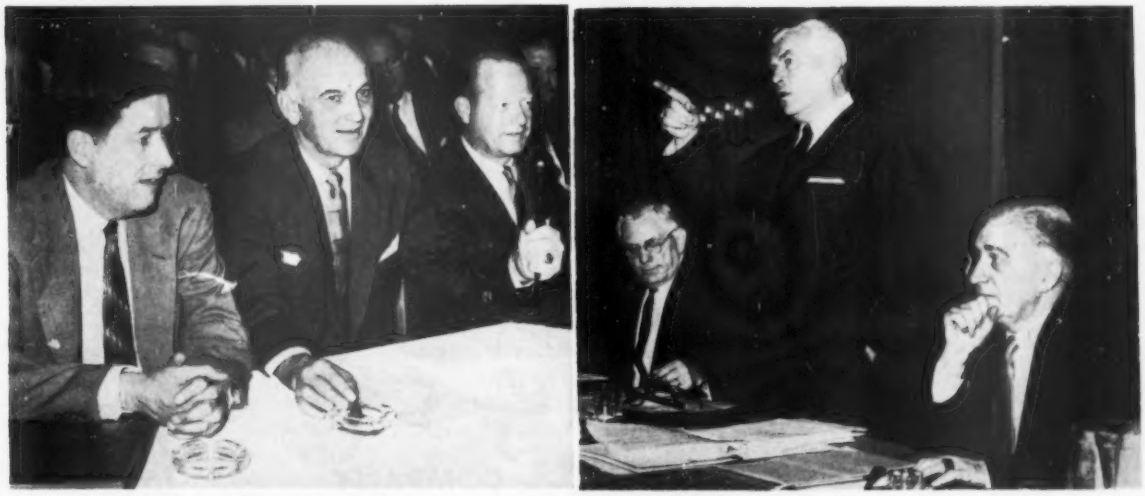
It is difficult to project the total tonnage of steel held by industry as inventory. A figure used for the steel inventory at the peak buildup in mid-1957 was 20 million tons.

By the end of recession year 1958, this high tonnage level had reportedly been worked down to about eight million tons. Thus, the level of steel inventory at mid-year will be around 17 million tons.

These figures indicate a more than adequate inventory level for a short strike, and even a goodly margin for a fairly long strike. Since the strike would come in the summer months, the use of steel by industry would be seasonally low due to vacations.

In addition, the third quarter will be a period of changeover to new models for the auto industry. So use of steel by that industry will be at a lower rate.

Participants at the Bargaining Table



The nation waits as R. Conrad Cooper, of U. S. Steel Co. (l.), tries to hammer out a new labor contract with David J. McDonald, head of the steelworkers union.

For More Information Write No. 167
←on Inquiry Card—Page 32

DoALL ECONOMY SPECIAL
LEFT-HAND TAP SET
Here's an amazing buy! Yours for less than half price.
This set of left-hand taps is another DoALL first! How many times have you needed a left-hand tap to get a critical job done? Protect yourself—be prepared on future jobs. These top-quality taps are of high-speed steel ground thread. Set of ten taps in wooden block, sizes ¼" through ½", in N.C. and N.F. thread set No. D-301-L. Order today.
DoALL Quality! DoALL Laboratory-Inspected!
ONLY $30.00
DoALL keeps prices down, yet gives you top quality through its low-cost, nation-wide distributing system. Every tool must pass DOALL's rigid laboratory inspection.
Danny DoALL
DANNY DoALL
CT-48
Reamers
Drills
Taps
Files
Hand Files
Machine Files
Inspection Tools
Gage Blocks
Black Granite
DoALL File Bands
Turning Tools
Drill Rod
Milling Cutters
End Mills
Saw Bands
DoALL BAND SAW BLADE
TO CUT EVERY METAL AND MATERIAL
Hack Saws
Slitting Saws
Grinding Wheels
Dies
AIR HARDENING
OIL HARDENING
Tool & Die Steel
IN STOCK
AT YOUR LOCAL DoALL STORE
all laboratory-inspected
Machines and Blades
Surface Grinders
Power Saws
THE DoALL COMPANY
DES PLAINES, ILLINOIS
Reach for Your DoALL Catalog
Find Your DoALL STORE In The "Yellow Pages"

For More Information Write No. 168 on Inquiry Card—Page 32

Washington Report

• U.S. Prices in Line With Foreign Firms

The concept that U.S. producers are pricing themselves out of world markets is labeled a myth by Henry Kearns, Assistant Secretary of Commerce for International Affairs.

Kearns claims that the facts don't back up some of the statements being made. But the psychological impact of the myth is costing us many sales and doing great harm to domestic manufacturers, he feels.

In support of his claim that the price spiral is not cutting us out of foreign markets, Kearns notes that most prices in the U.S. have risen less—or at least not significantly more—than in the major European industrial countries.

The average rise of all prices in 1953 in the U.S. appears to have been less than in the United Kingdom and France and about the same as in Western Germany and Italy. And, according to Kearns, U.S. export prices for manufacturers, while rising faster than those of Germany and Italy since 1953, have not risen out of line with those of the United Kingdom and France.

Spokesmen in the Department of Commerce do not deny that the European producers are now able to quote lower prices in many lines. But they point out that the stigma of higher price has been tacked on U.S. goods to a point where foreign buyers are shying away from American-made goods without even checking either the price or other considerations that might alter their decision.

• More Orders Asked For Small Business

A change in the nature of military buying—due to higher cost per unit and fewer units involved in each contract—has aroused concern over the treatment of small suppliers.

Small business has been a favorite ward of Congress, where many politicians feel that big business should be needled and small business protected. A Senate Government Procurement Subcommittee has been hearing testimony on the effect of new defense technology on small business.

C. W. La Pierre, an official of the General Electric Company's defense industry group, stated that over 85% of the 45,000 suppliers and subcontractors used by GE can be classified as small business. La Pierre explained that in the new complex technologies, "large-scale enterprises can, should, and do take the big complex development tasks and split them down into small packages that small companies can get their arms around."

In specialized defense operations, GE draws on 17,000 outside firms, of which about 90% are small businesses. About 53¢ of every defense dollar goes to small business, according to GE's estimate. Of this amount, 38¢ goes directly to small business as contractors and suppliers to GE, while the remainder goes to small business as suppliers to the larger subcontractors working on GE contracts.

• Congress Considering New Renegotiation Act

The Renegotiation Act is slated to die on June 30. But even if Congress does not pass a new law by that date, it will probably approve an extension of the present act.

It wouldn't be the first time this law has lapsed on the statute books. But each time previously, the lawmakers have extended it until a new one could be passed.

If the law should be allowed to expire, military contracts let subsequent to June 30 will still carry a renegotiation clause. The reason? If another such law is enacted, it would apply to contracts signed in the interim.

Industrial groups are urging Congress to amend the provisions of any new law. They want defense contractors to have more latitude to retain earned profits.

HARDINGE COLLETS — FEED FINGERS — PADS

HARDINGE

Collets, Feed Fingers — Pads

For all Automatic Screw Machines, Chucking Machines, and Turret Lathes.

Available for: Brown & Sharpe, Cleveland, Cone, Davenport, Greenlee, Acme-Gridley, National Acme, New Britain, Warner and Swasey, Jones & Lamson, Gisholt, Bardons and Oliver, Foster, Morey, Simmons and others.

One Source of Supply for all your collet feed finger and pad requirements, means purchasing economy.

Send for Catalog 36

HARDINGE BROTHERS, INC.
ELMIRA, N. Y.

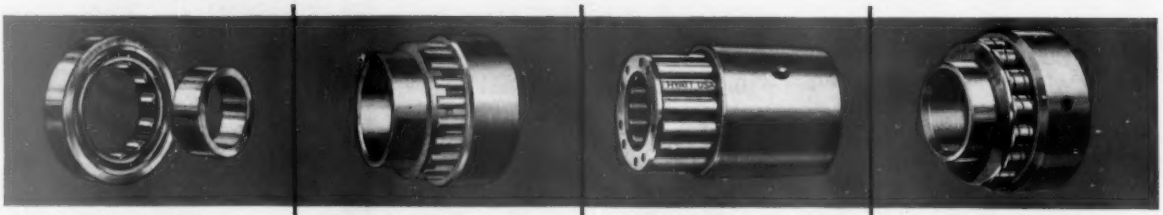
Immediate Delivery from Conveniently Located Stocks in:

Atlanta, Boston, Chicago, Dayton, Detroit, Elmira, Hartford, Los Angeles, New York, Philadelphia, Seattle, Portland, Minneapolis, Oakland, St. Louis, Toronto, Montreal.

For More Information Write No. 169 on Inquiry Card—Page 32

NO BEARINGS carry radial loads like cylindrical bearings...and NOBODY knows them like HYATT

Whatever your roller bearing problem, you'll find a type to solve it in America's most complete line of cylindrical bearings—HYATT Hy-Rolls! Their greater load capacity is particularly helpful when heavy loads must be carried in cramped quarters. To save space, inner or outer races can be omitted from separable types. Shouldered-race types will also take thrust and locate heavy shafts dependably. You can *depend* on the advice of your HYATT Sales Engineer—and the bearings he recommends! Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.



METRIC SERIES

High-capacity cylindrical roller bearings for heavy radial loads and light or intermittent thrust loads.

INDUSTRIAL INCH

Designed for slow-moving, heavily loaded machinery where large-diameter shafts are usually employed.

TRUNNIONED ROLLER

For industrial trucks, textile machinery, gear pumps, conveyors, hoists, agricultural equipment, etc.

WOUND ROLLER

A three-part separable bearing which provides maximum resistance to shock, abrasion and fatigue.

For Speeds up to 50,000 RPM—HYATTS are designed to meet almost any speed requirement, ranging from slow-moving construction equipment to supersonic jet engines.

For Temperatures from Below Zero to 450° F.—Conventional steels can be heat-treated for operation up to 450° F. Special high-temperature steels can be provided when required.

In Sizes from ¾" OD to 14" OD—HYATT offers a wide variety of bearing types and sizes—each quality-designed and quality-controlled to provide longer life.

For Loads up to 163,000 Lbs.—From small bearings for lawn mowers to heavy-duty types used in giant industrial cranes, HYATT builds bearings to carry any kind of radial load.

6 BUILT-IN BENEFITS:

★ Higher radial load capacity ★ Minimum space requirements ★ Omitted races are optional ★ Shaft location without sacrificing load capacity ★ Easier assembly and disassembly ★ Heavier press fits simplify retainment.

Available through United Motors System and its Independent Bearing Distributors

THE RECOGNIZED LEADER IN CYLINDRICAL BEARINGS

GM GENERAL MOTORS

HYATT HY-ROLL BEARINGS FOR MODERN INDUSTRY

For More Information Write No. 170 on Inquiry Card—Page 32

Washington Report

The chairman of the Renegotiation Board has pointed out that 3202 determinations of excess profits have been made. All but 522 were agreed to by the contractor.

• BDSA Plans Overhaul Of Materials System

The Business and Defense Services Administration is Preparing a major overhaul of the Defense Materials System, which has been used to give priorities to military and atomic energy programs in the post-Korean period.

DMS is the peacetime successor of the Controlled Materials Plan. While there has been no shortage of most materials for a number of years, it has provided top priority ratings (DX) for scarce electronics components. And it is still a factor in the supply system for manufacture of ballistic missiles and some atomic energy requirements.

The new concept is that DMS is needed even during peacetime plenty for the limited cases where some priority help is important. However, the real justification for continuing it is to have a working system ready in the event of another war emergency.

Based on six years' operating experience with the "bobtailed" materials control plan, BDSA feels that it can retain most of the benefits of the system, and cut paperwork for the contractors and subs who use the priorities. The general approach is to change the rules so that the priority would apply only to a limited number of contracts. Also, ratings would be extended only to a specific level of contracting tiers. This would cut down on the number of suppliers involved in the control system.

In working out the new control system, BDSA officials have been meeting with industry and government representatives. A new regulation will be issued—DMS Regulation 1—with the rules becoming operative in the third quarter.—**A. N. Wecksler**

Fresh onions packed in ice for shipment in M/R corrugated boxes —just one of many applications for this new H & D development.

STAYS STRONG WHEN WET! It's *M/R*® moisture-resistant corrugated developed by H & D.

No product's too wet for corrugated boxes made of M/R board. Wax-impregnated M/R sheds water like a duck's back, stays strong and firm even when dripping wet. Produce, fruit and other wet product packers save money with this new Hinde & Dauch development. Looking for a better way to box your product? Better see H & D.

Hinde & Dauch
Division, West Virginia Pulp and Paper

AUTHORITY ON PACKAGING • SANDUSKY, OHIO • 15 FACTORIES • 42 SALES OFFICES

HINDE & DAUCH
Division, West Virginia Pulp and Paper
5913 Decatur Street • Sandusky, Ohio

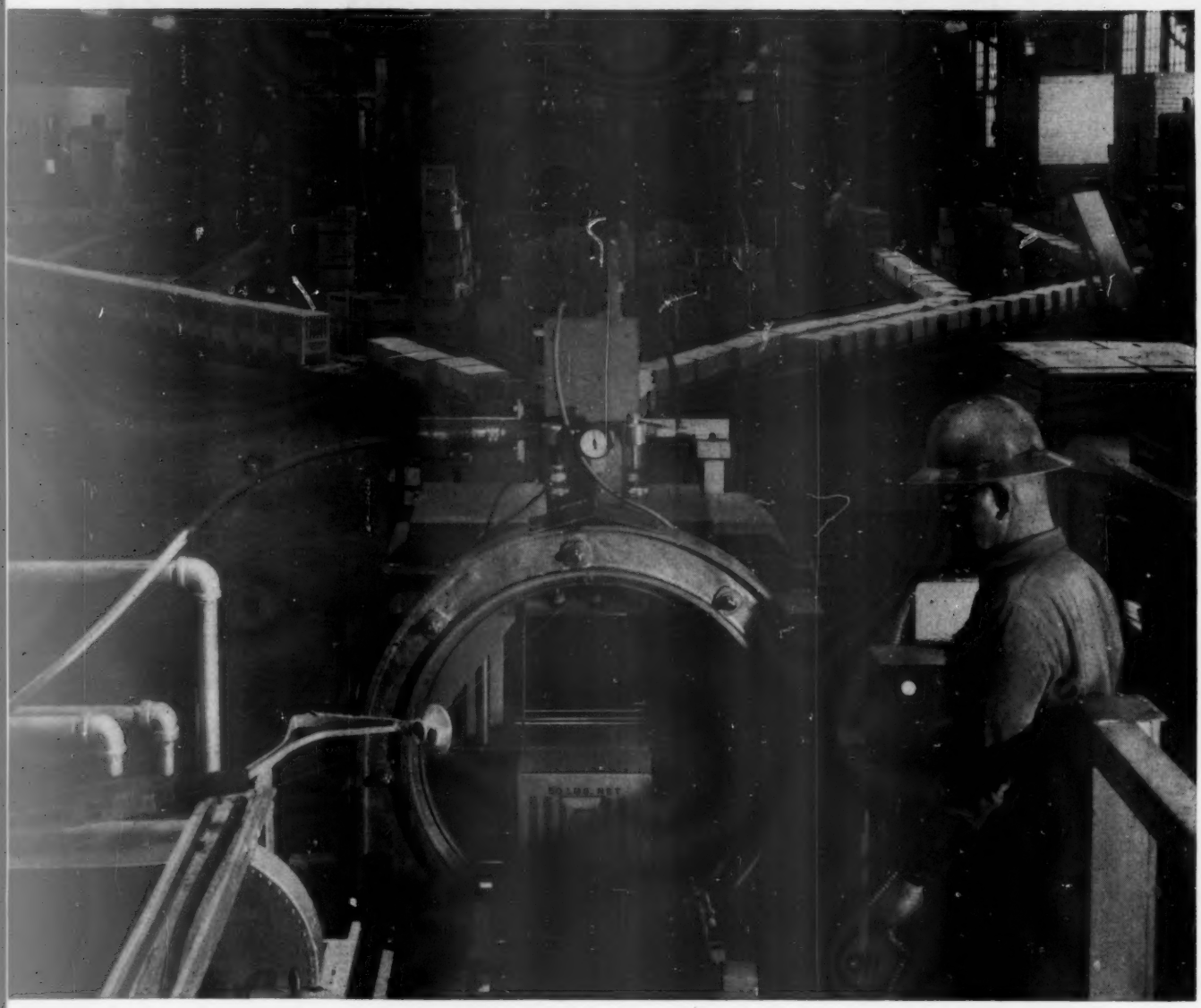
Please rush me samples and detailed literature on new M/R corrugated boxes.

Name_____
Company_____
Address_____
City_____ Zone____ State_____

For More Information Write No. 171 on Inquiry Card—Page 32

Another example of USS **COMPLETE**

Model 12 does the work of two machines



Lightens your work —In the packaging operation shown here, one Model 12 USS Strapping Machine replaced two machines which were formerly needed to handle a wide variety of box sizes. The manufacturer reports, "Adjusting the strapping machine for different-sized cartons is now a matter of two or three seconds versus two or three minutes to adjust the previous machines. Where the old system was capable of binding 2,400 cartons per day, the new machine handles 3,000 cartons daily." Model 12 is fully automatic and ties packages from as small as 2 "x 8" up to 22" x 26", making 24 ties per minute.

U. S. Steel Supply
Division of
United States Steel

USS

USS Steel Strapping formerly
Gerrard Steel Strapping

STRAPPING **STRAPPING TOOLS**

STEEL STRAPPING SERVICE

—cuts strapping costs in half

Brightens your profits—USS Round Steel Strapping used by the Model 12 offers a considerable saving in strapping costs. In this regard, the manufacturer says, "The biggest savings we have experienced is in material costs— 48% savings on 100-pound cartons and 45% on 50-pound cartons. A pound of round steel strapping (96 feet) will bind more boxes than a pound of flat steel strapping which contains 52.4 feet." Other manufacturers have experienced similar reductions in material costs, some as high as 50%, when they switched to USS Round Steel Strapping.

USS is a registered trademark

TECHNICAL ASSISTANCE

Widens your potential—In many operations, the installation of the Model 12 machine has the effect of breaking a bottleneck. Faster tying permits increased production—more units shipped per man-hour. Why not consult a USS Steel Strapping Specialist about the application of Model 12 to your production line? Our Strapping Specialists are thoroughly familiar with industrial packaging problems and production line techniques. They have a wealth of experience to apply to your problems, and are not prejudiced in reaching the best solution. They can offer you either round or flat steel strapping as well as hand-operated, semi-automatic and automatic tying machines. Write for a free copy of our Sweet's Catalog insert for further information. U. S. Steel Supply Division, United States Steel, 208 South LaSalle Street, Chicago 4, Illinois.

1. In-Use Safety Test: To measure vapor concentrations of various cold cleaning solvents on the job, Du Pont uses sensitive Davis Halide Meters. The sample tube strapped to the forehead of technician (above) measures amount of solvent vapors that pass nostrils during typical cold cleaning operation. Tests such as these were used to obtain reliable evaluation of various cold cleaning solvents and to show "safety-in-use" features of "Perclene". (See #2.)

Nose-Level Concentrations for Typical Cold Cleaning Operations Using "Perclene" Perchlorethylene

METHOD	OBJECTS CLEANED	AV. VAPOR CONC. PPM	% OF MAC† (200 PPM)
Immersed with Agitation	Aluminum plates 2" x 10" x ½"	102	51
Dipping	Cast-iron nipples 2" diam. x 8" long	19	10
Hand Wiping	Galvanized sheets 10" x 32" x 1/16"	57	29
Hand Wiping	Painted metal lockers (lightly soiled)	98	49
Hand Wiping	Painted metal lockers (heavily soiled)	165	82
Brushing	Aluminum plates 2" x 10" x ½"	108	54
	Average	92	46

†As recommended by American Conference of Governmental Industrial Hygienists, 1958.

2. Condensed chart from Du Pont technical report shows results of air tests taken during typical plant cold cleaning operation. Note that average for all tests, 92 ppm, was well below the MAC of 200 ppm. This does not imply, however, that perchlorethylene or any other cold cleaning solvent should be used without observing the fundamental safe practices for handling organic solvents. For a copy of Du Pont's complete technical report use the coupon below.

Du Pont tests show...

Why Perclene® perchlorethylene is

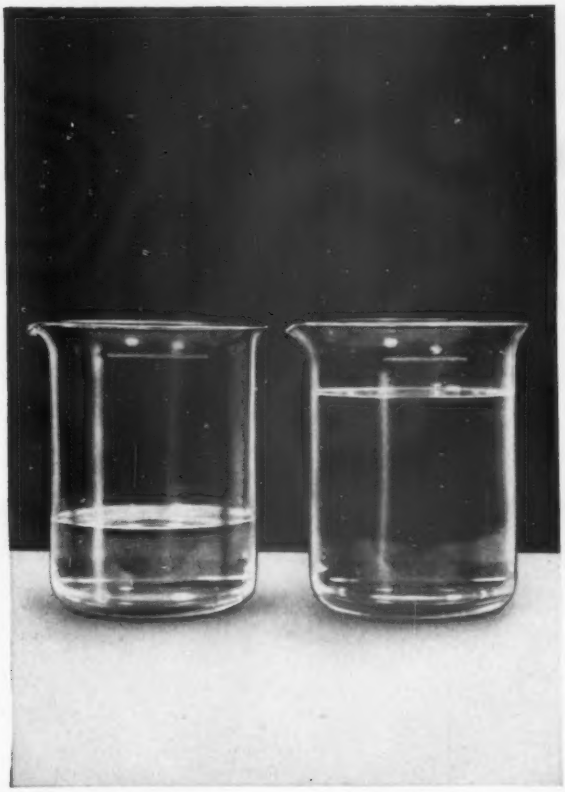
SAFETY IN USE—Industrial hygienists have found that the most reliable way to evaluate the safety factor of cold cleaning solvents is to measure vapor concentrations in the atmosphere *under actual working conditions*. Plant tests (illustrations #1 and #2) made on a variety of cold cleaning operations showed that with "Perclene" perchlorethylene average vapor concentrations stay consistently below its maximum allowable concentration of 200 ppm*. Key to this safety factor is the efficient evaporation rate of "Perclene".

EXTRA ECONOMY—The efficient evaporation rate of "Perclene" cuts on-the-job evaporation losses and helps extend the cleaning life of the solvent. (See illustrations #3 & #4). In addition, "Perclene" is easily recoverable for economical reuse, and solvent losses from distillation are generally less than 5% of the soil removed.

OTHER ADVANTAGES—"Perclene" has the unique advantage of evaporating fast enough for dip and spray work—yet slow enough to cut and loosen soil effectively in hand-wiping operations.

In cold cleaning mixtures "Perclene" can be used to raise flash points and obtain uniform evaporation characteristics.

*Established for perchlorethylene by the American Conference of Industrial Hygienists (1958)



3. Cuts Evaporation Losses—Lowers Costs—Photo shows result of evaporation test comparing "Perclene" with another leading cold cleaning solvent (methyl chloroform). (Note line at top of each beaker.) The two beakers were placed under a laboratory hood and allowed to stand overnight at room temperature. "Perclene" loss (right) is substantially less, reflecting the advantages inherent in its efficient evaporation rate. Reduced evaporation losses save you money!

4. Advantages in Hand Wiping—This metal shield was heavily coated with oily dirt. The left portion (note cleaned area above weld mark) was wiped with rag full of a methyl chloroform (1,1,1-trichloroethane); the right, with an equal amount of "Perclene". Note how much further "Perclene" goes. This is because "Perclene" evaporates slower and keeps the rag wet longer to remove the soil. Hand wiping with "Perclene" requires less labor, too.

the ideal cold cleaning solvent

In addition to the advantages of extra economy and safety in use, "Perclene" also offers:

- Nonflammability
- Stability
- Safety for delicate metals
- Fast solvent action
- High chemical purity
- Narrow boiling range

Check these "Perclene" advantages for *your* cold cleaning operations.

PERCLENE®

PERCHLORETHYLENE

DU PONT

REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

▶ For more detailed information—send for Du Pont's *Technical Report* on Cold Cleaning Solvents. For your copy, just contact your Du Pont distributor of "Perclene" or mail coupon below.

P-5

E. I. du Pont de Nemours & Co. (Inc.)
Electrochemicals Department—Chlorine Products Division
Wilmington 98, Delaware

Please send me a copy of Du Pont's Technical Report on "Perclene" and other cold cleaning solvents.

*Name*_____ *Position*_____

*Firm*_____

*Address*_____

*City*_____ *State*_____

For More Information Write No. 172 on Inquiry Card—Page 32

UNION 20-S

Announcing a New Source for:

- pipe
- tube
- strip
- sheet
- plate
- bar
- wire

in stock for immediate delivery.

Described in Bulletin 20-S.

leadership through research

UNION STEEL CORPORATION

UNION, NEW JERSEY • MUrdock 7-2000

STAINLESS and SPECIALTY STEELS - exclusively

For More Information Write No. 173 on Inquiry Card—Page 32

PRESTRESSED!

Quaker Thermoid Conveyor Belting keeps rolling with the punches

Before it ever comes to you, the heaviest tension you'll put on Thermoid-Quaker Conveyor Belting has already been built in—and then released *after* curing. So the rubber and fabric are really in *compression* when you put the belting to work—ready for the toughest pull without overstraining the yarn or the cover.

There's a Thermoid-Quaker belting designed with just the combination of properties you need for each conveying job. To get the right belting for *your* needs, talk with the Thermoid industrial distributor nearest you, or write to *Thermoid Division, H. K. Porter Company, Inc., Tacony & Comly Sts., Philadelphia 24, Pa.*

Notice how the special ply construction of Thermoid-Quaker "VICTOR" Belting provides greater flexibility at the edges—more shock-absorbing rubber where the worst beating occurs.

THERMOID DIVISION PORTER **H.K. PORTER COMPANY, INC.**

Divisions: Connors Steel, Delta-Star Electric, Disston, Forge and Fittings, Leschen Wire Rope, Mouldings, National Electric, Refractories, Riverside-Alloy Metal, Thermoid, Vulcan-Kidd Steel, H. K. Porter Company (Canada) Ltd.

For More Information Write No. 174 on Inquiry Card—Page 32

For More Information Write No. 175 on Inquiry Card—Page 32→

Correct Lubrication in Action...

Bearing manufacturer

Here in Norma-Hoffmann's Gauging Control Room, outer ring race diameter of a roller bearing is checked to within millionths of an inch. This leading bearing manufacturer has long been prominent in the development and manufacture of precision types of anti-friction bearings.

Mobil

Complete Engineering Program
Proved Petroleum Products

Mobil

rolls up $23,530 saving!

"In a growth company, we cannot afford to delay tomorrow's decisions while we stamp out today's brush fires. What plagues those of us in management are the myriad, small unknown-to-us problems that soar production costs, affect competitive position. This is where Mobil is helping us reduce manufacturing expense and improve production. Our 1958 records show that we saved over three times as much as we spent with Mobil last year . . . a most profitable relationship!"

R. D. Robertson

Vice-President—Manufacturing
Norma-Hoffmann Bearings Corporation, Stamford, Conn.

Mr. Robertson's words underscore the importance of Correct Lubrication to any profit-minded manufacturer. At Norma-Hoffmann Bearings Corporation Mobil lubrication engineers work closely with an extremely cost-conscious maintenance department. Downtime, parts replacements and maintenance costs have been cut—$23,530 saved in 1958 alone. Some of these savings are detailed below.

For example: Sticking valves on one grinder were a constant problem. Cause of the trouble was a mystery. Mobil's representative sent a sample of lubricant from the machine's reservoir to the Mobil laboratory. Analysis report led to cause of trouble—a lead sheathed cable submerged in the oil reservoir was contaminating oil. This detective work on the part of Mobil restored continuous production, saved $5,850 in maintenance costs.

This kind of practical engineering help is just a part of a Mobil program of Correct Lubrication. For complete details on how Mobil can improve your profits call your nearest Mobil representative. You'll find—You're Miles Ahead with Mobil!

Erratic, stick-slip operation of three grinders caused poor size holding. Mobil engineers found trouble was caused by deposits on valves and use of incorrect competitive oil. A correct way and hydraulic oil was installed. Greater production, fewer wheel dressings, less scrap and reduction in valve-cleaning costs saved $8,640.

To keep 16 of Norma's Multiple Spindle Bar machines functioning properly required a weekly 40-minute production interruption on each one to supply lubricant for tool slides. Mobil engineer studied procedure . . . suggested a simple lubrication system modification. Application time was reduced 75% . . . $7,040 saved on production and application.

Correct Lubrication

Another reason You're Miles Ahead with Mobil!

New High-Strength Material Extends Superior Line of Stainless Steel Tubing Analyses

PH 15-7 Mo, a new precipitation-hardening stainless steel analysis, possesses excellent mechanical properties at room temperature, outstanding ones at elevated temperatures. In addition, it is readily fabricated in the annealed condition, exhibits good corrosion resistance characteristics, can be hardened by heat treatment with minimum distortion.

Tubing of this new analysis is recommended for aircraft structural parts, studs and bushings, Bourdon springs and torque tubes in instrumentation, tubular springs, and hydraulic lines where severe bending and forming are required. It is available in WELDRAWN® form in size range from .012 through 1.125 in. OD.

In addition to PH 15-7 Mo, Superior offers the widest variety of analyses in the small-diameter tubing industry—over 120. This range permits you to specify the right one for your particular application. For complete information about PH 15-7 Mo and other analyses available for your needs, write Superior Tube Company, 2034 Germantown Ave., Norristown, Pa.

*Reg. U.S. Pat. Off., Armco Steel Corp.

Superior Tube

The big name in small tubing

NORRISTOWN, PA.

All analyses .010 in. to ⅝ in. OD—certain analyses in light walls up to 2½ in. OD

West Coast: Pacific Tube Company, Los Angeles, California • FIRST STEEL TUBE MILL IN THE WEST

For More Information Write No. 176 on Inquiry Card—Page 32

Bearings, Inc. customers don't worry about inventory control...

They let us keep *their* worries in *our* stockroom. We make surveys of the immediate, as well as long range requirements for all bearings in their equipment. Those carried in their stock are fast-moving. Expensive precision bearings, specials and other bearings purchased infrequently are carried in the Bearings, Inc. branch — ready for instant delivery, day or night.

If a shortage develops or production is interrupted, our customers know the bearings they need are in our stocks. A phone call and the bearings required will be on the way. Our customers know the value of this important service.

If bearing inventories are worrying *you*, why not call the Bearings, Inc. branch nearest you for help.

Providing bearing service in the North ➤ **BEARINGS, INC.**

OHIO: Akron • Canton • Cincinnati • Cleveland • Columbus • Dayton • Elyria • Hamilton • Lima • Lockland • Mansfield • Toledo • Youngstown • Zanesville
INDIANA: Ft. Wayne • Indianapolis • Muncie • Terre Haute • **PENNSYLVANIA:** Erie • Johnstown • Philadelphia • Pittsburgh • York
WEST VIRGINIA: Charleston • Huntington • Parkersburg • Wheeling • **NEW JERSEY:** Camden
NEW YORK: Buffalo, Balanrol Corp. • **MARYLAND:** Baltimore • **DELAWARE:** Wilmington

and

in the South ➤ **DIXIE BEARINGS, INC.**

FLORIDA: Jacksonville • **GEORGIA:** Atlanta • **KENTUCKY:** Louisville • **LOUISIANA:** Baton Rouge • New Orleans
N. CAROLINA: Charlotte • Greensboro • **S. CAROLINA:** Greenville • **TENNESSEE:** Chattanooga • Kingsport • Knoxville • Nashville

For More Information Write No. 177 on Inquiry Card—Page 32

Special Fasteners

Bethlehem makes the widest variety. Those you see here are just a small sample of the steel specialties we can produce. And our fasteners engineers will help you design products, whether they are headed, threaded, slotted or pointed. Try us. Our Lebanon, Pa., plant is geared to turn out your order fast.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

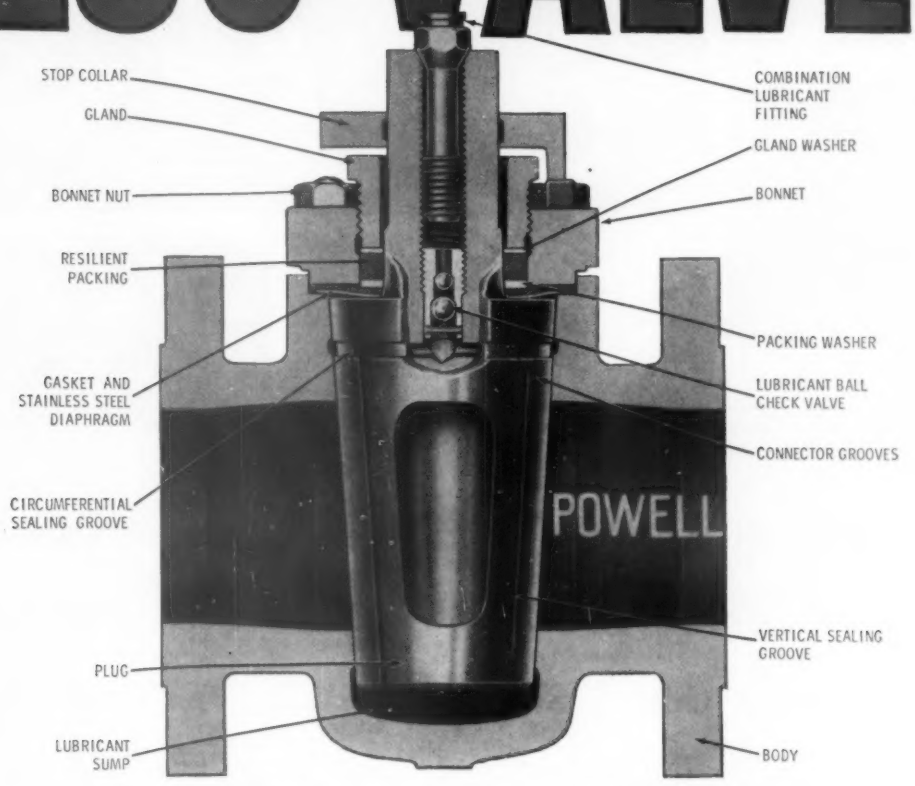
BETHLEHEM STEEL

BETHLEHEM STEEL

For More Information Write No. 178 on Inquiry Card—Page 32

POWELL

LUBRICATED PLUG VALVES



Sectional view Powell Screwed Gland Lubricated Plug Valve.

Like all Powell Valves, Powell Lubricated Plug Valves are superior in their field . . . and have many advantages over other conventional types of Valves.

- Simple design: only three basic parts—Body, Bonnet, Plug.
- Quick, complete shut-off—a quarter turn will close or open the valve.
- Tapered Plug assures positive seating.
- Machined surfaces of plug and body are not exposed in the open position. Any media adhering to the plug when in the closed position is removed when plug is rotated.
- Cavity-free straight passage assures streamlined flow in either direction. Scale and sediment cannot collect.

Powell Lubricated Plug Valves are available in sizes ½" through 16", depending on the type required—Semi-steel 175 and 200 pounds WOG;—Carbon Steel ASA 150 and 300 pounds.

Powell can also furnish Lubricated Plug Valves in other alloys on special order.

For all your valve needs, make it a policy to consult your local Powell Distributor—or write directly to us.

THE WM. POWELL COMPANY

Dependable Valves Since 1846 • Cincinnati 22, Ohio

For More Information Write No. 179 on Inquiry Card—Page 32

Mr. Gerald Thomas,
Assistant Maintenance Superintendent,
Portage plant of the Upjohn Company,
buys Scott Towels because:

"When you make products for public consumption, you can't tolerate any source of uncleanliness. Scott Towels don't shed lint which could shake loose from employees' clothes and contaminate the air in our production areas."

Scott Towels are clean, snowy-white, odorless, lint-free. Employees appreciate their soft, absorbent qualities. A single Scott UHA Towel can dry both hands and face. That's economy you should look into. Why not call your Scott distributor for the facts and figures? He's listed in the Yellow Pages under "Paper Towels."

SCOTT PAPER

Scott UHA Towels
Scott Multifold Towels
Scott Singlefold Towels
ScotTissue

Distributed through the leading paper merchants of America

For More Information Write No. 180 on Inquiry Card—Page 32

SNAP-LOCK Limit Switches

Actuate Two Circuits Simultaneously ...Without Special Linkage

The D-2400 series Snap-Lock Limit Switches with two normally open and two normally closed contacts permit making or breaking two individual circuits simultaneously. Mounting problems are simplified, special linkages eliminated and costs kept to a minimum.

Snap-Lock Limit Switches were originated by National Acme to meet the severe mechanical and electrical conditions imposed by all types of machine tools. The outstanding simplicity and ruggedness of these water and oil tight switches make them adaptable to the toughest heavy-duty assignments.

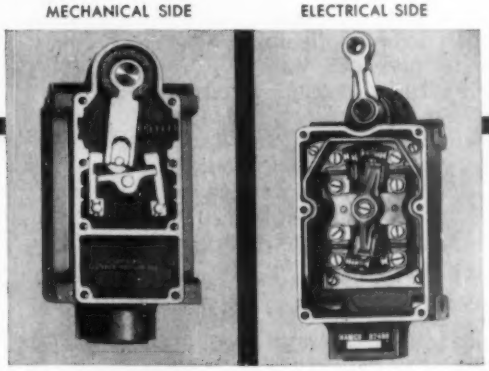
Four basic models with a wide variety of actuating levers will handle up to 5 amps, 600 volts, AC. For complete details, parts list, and scale drawings, write for Bulletin EM-5824.

National Acme

THE NATIONAL ACME COMPANY
191 E. 131st STREET
CLEVELAND 8, OHIO

Sales Offices: Newark 2, N. J., Chicago 6, Ill., Detroit 27, Mich.

MECHANICAL SIDE ELECTRICAL SIDE



All Snap-Lock switches have separate enclosures within a single housing for the mechanical and electrical sides. Ample wiring space is provided and maintenance greatly simplified.

NEW
Koroseal®
WORK GLOVES
offer GREATER RESISTANCE
to solvents and light oils
The new blue color identifies this jersey-lined Koroseal work glove that combines excellent abrasion resistance, maximum flexibility at low temperatures, with unsurpassed protection against hundreds of alkalies, salts, solvents, oils, greases, soaps, detergents, dyestuffs, etc. Also, the new Flexigluv has no obnoxious odor. Blue Koroseal Flexigluvs are available in fully-coated #K200 — knitwrist; — #K201 12" gauntlet; and #K202 14½" gauntlet.
FOR FULL INFORMATION AND PERFORMANCE CHART WRITE TO:
Hood Industrial Gloves
Watertown 72, Massachusetts
HOOD INDUSTRIAL GLOVES • KOROSEAL • NEOPRENE • RUBBER

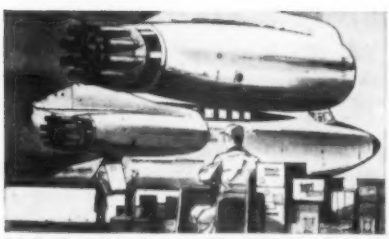
For More Information Write No. 182 on Inquiry Card—Page 32

Ship Coast to Coast on the WORLD'S FASTEST JETLINER!

TWA BOEING 707

The magnificent ***TWA BOEING 707*** is the fastest airliner in the world... designed to bring you the wonders of pure-jet freight service. And at no increase in rates!

Your consignment travels half a mile every three seconds coast to coast. You can ship bigger, heavier orders. Send more to more customers on a single Jet flight. And the ***TWA BOEING 707's*** advanced new electronic system assures proper climatic conditions for perishable shipments!



USE TWA JET FREIGHT

coast to coast

Call your Freight Forwarder or your nearest TWA Air Freight office today.

SHIP THE FASTEST WAY... SHIP **TWA** ***BOEING 707***

For More Information Write No. 183 on Inquiry Card—Page 32

Information For Your Catalog Files

ALLOY STEEL

An eight-page booklet describing four new hardness ranges of a heat-treated and abrasion-resistant alloy steel. Also covered are weldability, heat treatment, mechanical properties, fabrication, corrosion, and abrasion resistance.

Jones & Laughlin Steel Corporation

Write No. 1 on Inquiry Card—Page 32

ALUMINUM PIPE

A six-page brochure listing availabilities of extruded aluminum pipe in various sizes. The illustrated pamphlet also discusses performance characteristics, conversion factors, and mechanical properties. A chart is included listing specific corrosion resistance recommendations.

Kaiser Aluminum & Chemical Sales, Inc.

Write No. 2 on Inquiry Card—Page 32

CABLE

Catalog 33 describes and illustrates a polyvinyl-insulated, multi-conductor cable. The bulletin contains information on construction, ISA color coding and calibration symbols, and applications. Specifications are listed in chart form.

Thermo Electric Co., Inc.

Write No. 3 on Inquiry Card—Page 32

FORK LIFTS

An eight-page catalog on fork lifts. Describes the various models available and gives capacities and lifting heights.

Crown Controls Co., Inc.

Write No. 4 on Inquiry Card—Page 32

GRINDING GAGES

A 16-page catalog covering continuous grinding gages. Describes a miniature OD grinding gage for diameters below a half-inch, a king-size OD gage for diameters over 20 inches, and a gage for continuously measuring inside diameters while grinding.

Federal Products Corporation

Write No. 5 on Inquiry Card—Page 32

JEWEL BEARINGS

A 26-page two-color manual on jewel bearings and other industrial applications of sapphire. Manual #5 also has information on the properties and availabilities of industrial sapphire, types and nomenclature of the basic bearing types, and basic design factors.

Aurele M. Gatti, Inc.

Write No. 6 on Inquiry Card—Page 32

MANUAL STARTERS

Bulletin 11B1 describes manual starters rated through 7½ hp 440-550V AC and 2 hp 230V DC. Included also are dimensions and prices.

Furnas Electric Company

Write No. 7 on Inquiry Card—Page 32

PENCIL SHARPENERS, STAPLERS, ETC.

A catalog sheet illustrates and describes a complete line of pencil sharpeners, staplers and allied items. Clear photographs are provided of each item.

Apsco Products Inc.

Write No. 8 on Inquiry Card—Page 32

POWER CONNECTORS

A 12-page illustrated bulletin on miniature rectangular power connectors. Series 250 technical catalog gives specifications, outline drawings, and general information.

DeJur-Amsco Corporation

Write No. 9 on Inquiry Card—Page 32

PRESS BRAKES

An eight-page catalog on mechanical press brakes. Bulletin No. D-59 illustrates features and gives specifications of the 40 standard sizes with capacities from 90 to 500 tons.

Dreis & Krump Manufacturing Company

Write No. 10 on Inquiry Card—Page 32

PROPELLER FANS

A 20 page catalog giving details on self-cooled motor propeller fans. The booklet covers fan capacities ranging from 250 to 40,500 cfm. Also included are duct fans, wall ventilators, floor fans, and circulating fans.

Ilg Electric Ventilating Company

Write No. 11 on Inquiry Card—Page 32

PUNCH PRESSES

A four-page catalog on punch presses. The illustrated brochure includes specifications, dimensions, and photographs.

Kenco Manufacturing Company

Write No. 12 on Inquiry Card—Page 32

For More Information Write No. 184 on Inquiry Card—Page 32→

At Rotary Lift Co., *quality Youngstown Seamless Pipe is being turned in this specially-built elevator plunger lathe.*

Accent on Excellence

Youngstown seamless pipe

Fully-loaded highway tractor-trailer rigs now drive into New York's new 4-level $35-million Coliseum—take their loads directly to the proper exhibition location. Making this possible is a gigantic hydraulic elevator—lifting capacity 75,000 pounds—designed and built by Rotary Lift Company, Division of Dover Corporation.

Rotary's engineers tell us, "Youngstown Seamless Steel Pipe always provides the ultimate in quality for fabricating our Oildraulic elevator plungers. It's machined and polished to a super smooth (15-25 micro-inch) surface. This provides smoother operation and longer life for our complete line of elevators and industrial lifting devices."

Wherever steel becomes a part of things *you* make, the high standards of Youngstown *quality*, the personal touch in Youngstown *service* will help you create products with an "accent on excellence".

QUALITY YOUNGSTOWN SERVICE

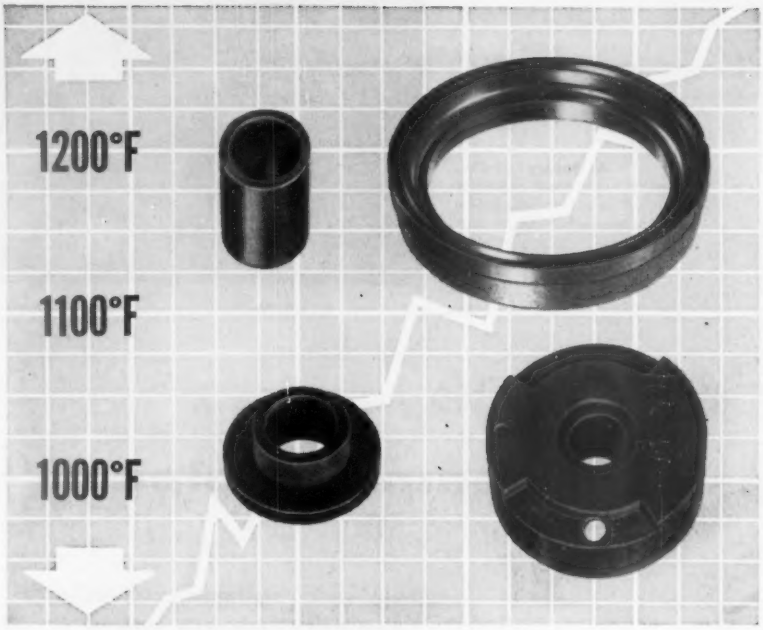
THE

YOUNGSTOWN

SHEET AND TUBE COMPANY

Youngstown, Ohio

Manufacturers of Carbon, Alloy and Yoloy Steel



A NOTABLE NEW HIGH-TEMPERATURE GRAPHITE

for mechanical uses

When mechanical applications call for a material having low friction and low wear rates at temperatures where ordinary graphite and even many metals fail, Stackpole Grade 469 high-temperature graphite may well be the answer. Typical applications include extensive use as main bearing oil seals on turbo-prop engines and as bearing inserts in turbine blade pitch adjusting mechanisms.

A special treatment that inhibits oxidation assures maximum performance between 1000° and 1200° F. and will not "bleed out." The material is also good at lower temperatures.

Grade 469 is self-lubricating, will not seize or fuse and is unaffected by most chemicals and gases. Transverse strength is better than average. It is supplied in blanks or finished pieces or as bearings press-fitted into stainless steel housings.

Hundreds of other low-cost Stackpole carbon and graphite materials are likewise available. Send details of your application for suitable grade recommendation.

STACKPOLE CARBON CO., St. Marys, Pa.

STACKPOLE

BRUSHES for all rotating electrical equipment • COMPOSITION ELECTRICAL CONTACTS • BEARINGS • SEAL RINGS • VOLTAGE REGULATOR DISCS MOLDS & DIES • FRICTION SEGMENTS • CORROSION CONTROL RODS HEATING ELEMENTS • CHEMICAL ANODES • BRAZING BOATS • WELDING CARBONS . . . and many other carbon, graphite and metal powder products.

For More Information Write No. 185 on Inquiry Card—Page 32

Catalog Files

SCREW CONVEYOR DRIVES

Bulletin A667C describes a compact screw conveyor drive containing a speed reducer, packing gland and drive shaft. The 16-page catalog includes photographs, engineering drawings with dimensions, prices, and tables to facilitate selection.

Dodge Manufacturing Corporation

Write No. 13 on Inquiry Card—Page 32

SOLENOID VALVES

Catalog #444 lists a line of over 200 bronze and stainless steel solenoid valves. The 36-page bulletin gives specifications, performance data, application information, and optional features. Cutaway drawings are used to identify parts and illustrate operation.

Atkomatic Valve Company

Write No. 14 on Inquiry Card—Page 32

SPEED REDUCERS

Bulletin 5908 contains information and specifications of vertical-helical speed reducers. The catalog covers both double and triple reducers and includes selection instructions covering many different types of installations.

Western Gear Corporation

Write No. 15 on Inquiry Card—Page 32

TERMINAL BUSHINGS

A 16-page illustrated catalog describing high voltage terminal bushings and ceramic-to-metal seals. Bulletin A-40 gives complete specifications of over 100 standard sizes. Also included in the two-color bulletin are specification charts giving performance data.

U. S. Stoneware Co.

Write No. 16 on Inquiry Card—Page 32

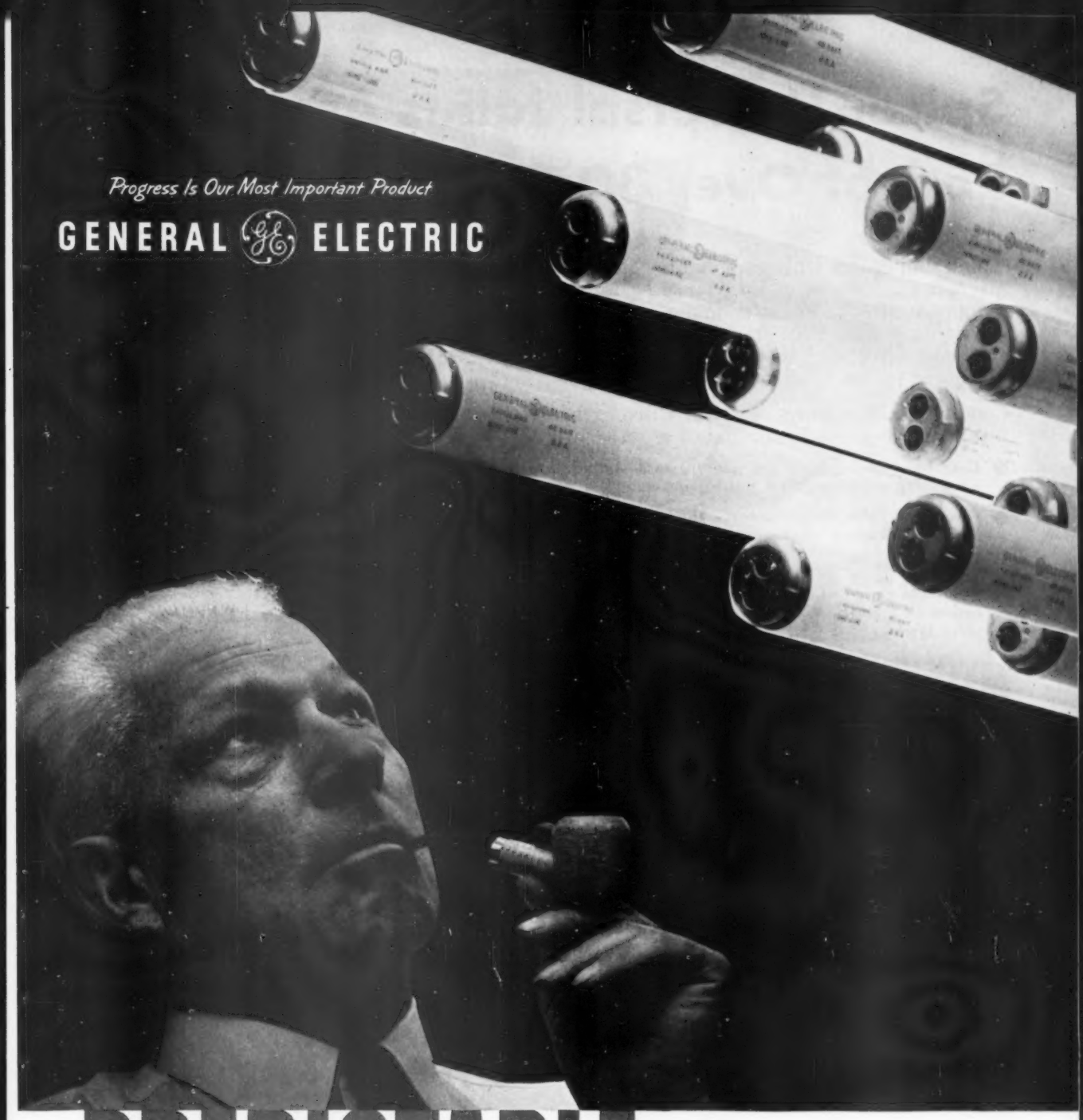
TRANSFORMERS

Bulletin GEA - 6668A describes low-sound open dry-type transformers. The eight-page catalog outlines installation and maintenance information and charts electrical and mechanical features.

General Electric Company

Write No. 17 on Inquiry Card—Page 32

For More Information Write No. 186 on Inquiry Card—Page 32→



PREDICTABLE

"A growing number of companies like ours group relamp. We start off each department with new lamps —and, just before they begin burning out at a rapid rate, we replace the whole set, rather than burnout by burnout. But to make group relamping *really work*, we need the *predictable performance* of General Electric Lamps. Otherwise I have department heads climbing all over me because a maintenance man is climbing all over them to replace early burnouts.

"Only G-E Lamps give us the predictable performance we need to make group relamping practical. On the average, 99 out of 100 will still be burning after almost two years of service. So we aren't bothered by early burnouts—and we get more light for our money."

If you'd like more information on group relamping with predictable G-E Lamps, write: General Electric Co., Large Lamp Dept. C-921, Nela Park, Cleveland 12, O.

Spicer Universal Joints Are a Vital Part of Over 30,000 Applications

You'll find Spicer Universal Joints specified on all kinds of aircraft . . . *where quality must be the highest* . . . on dynamometers . . . *where dynamic balance is critical* . . . on off-highway equipment . . . *where dirt is the thickest.* In all, designers have employed Spicer Universal Joints in over 30,000 ways.

Compare these features of Spicer Universal Joints before you write your specifications:

- **Case hardened splines are ground to a smooth finish on all sliding surfaces, then phosphate coated.**
- **One-piece yoke design insures the rigidity required for true bearing alignment.**
- **Dynamically balanced to the closest limits.**
- **Complete range of sizes for every application in a wide selection of flange and yoke types.**

DANA
Spicer

DANA CORPORATION
Toledo 1, Ohio

When you need help with a power transmission problem, call on Dana's 55 years of experience.

DANA PRODUCTS Serve Many Fields:

AUTOMOTIVE: Transmissions, Universal Joints, Propeller Shafts, Axles, Powr-Lok Differentials, Torque Converters, Gear Boxes, Power Take-Offs, Power Take-Off Joints, Clutches, Frames, Forgings, Stampings.

INDUSTRIAL VEHICLES AND EQUIPMENT: Transmissions, Universal Joints, Propeller Shafts, Axles, Gear Boxes, Clutches, Forgings, Stampings.

AVIATION: Universal Joints, Propeller Shafts, Axles, Gears, Forgings, Stampings.

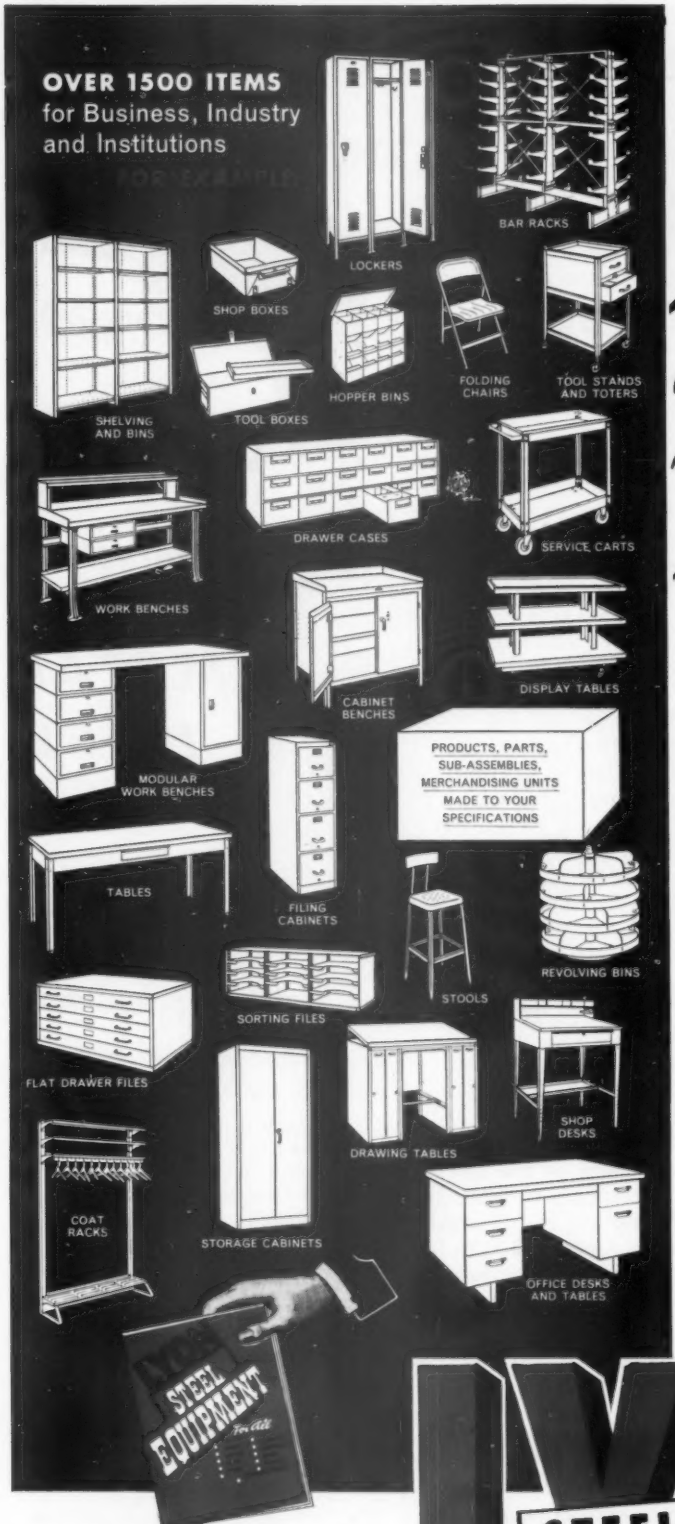
RAILROAD: Transmissions, Universal Joints, Propeller Shafts, Generator Drives, Rail Car Drives, Pressed Steel Parts, Traction Motor Drives, Forgings, Stampings.

AGRICULTURE: Universal Joints, Propeller Shafts, Axles, Power Take-Offs, Power Take-Off Joints, Clutches, Forgings, Stampings.

MARINE: Universal Joints, Propeller Shafts, Gear Boxes, Forgings, Stampings.

Many of these products manufactured in Canada by ***Hayes Steel Products Limited, Merritton, Ontario.***

For More Information Write No. 187 on Inquiry Card—Page 32



★QUALITY PROTECTED BY LYON "POINT-CHECK" SYSTEM

✓ FABRICATING | ✓ ASSEMBLING
✓ FINISHING | ✓ PACKAGING

Look for the "QP" on every Lyon Carton. It is your assurance of quality equipment.

See your Lyon Dealer for prompt delivery of the world's most diversified line of steel equipment

LYON METAL PRODUCTS, INC.
General Offices: 533 Monroe Ave., Aurora, Illinois
Factories in Aurora, Illinois and York, Pa.
Dealers and Branches in all Principal Cities

THIS CATALOG ILLUSTRATES THE WORLD'S MOST DIVERSIFIED LINE OF STEEL EQUIPMENT *IT'S FREE!*

LYON®
STEEL EQUIPMENT

Letters To The Editor

TRAVELING REQUISITIONS

Dear Sir:

From time to time we have read articles in your magazine in reference to traveling requisitions. We are interested in this procedure, but right now cannot locate anyone who is using it.

Would it be possible for you to send me a list of companies who are using the traveling requisition? If we had such a list we could write them and get more detailed information. Anything you can do to help us along this line will be greatly appreciated.

P. J. Tammaro
Purchasing Agent
Ingersoll-Rand Company
Painted Post, New York

Dear Sir:

Please send me the names and addresses of companies in the field of instrumentation and electrical manufacture who have successful traveling requisition systems in operation.

Wayne Koder
Purchasing Department
Sperry Farragut Company
Division of Sperry Rand Corp.
Bristol, Tenn.

• PURCHASING Magazine editors *find very little difference in the basic traveling requisition system even though used by companies in widely divergent industries. A list would read like a roster of American industry. Some examples which appeared in recent issues are: Swift & Company, Chicago, Ill.; Buxton, Inc., Agawam, Mass.; Acushnet Process Company, New Bedford, Mass.; Thompson Products, Cleveland, Ohio; and Kaiser Aluminum, Oakland, Calif.*

PUT YOUR COMPANY IN THE BLACK

Dear Sir:

I am sure that many people like myself scan the "Purchasing People In The News" section of each issue. Of course, many of the individuals and even some of the companies are unknown to some of your readers.

Your practice of printing the names of the individuals in heavy black type makes it easier to scan quickly through the section and only stop with the names known to your reader.

However, may I make a suggestion: Perhaps you might want to consider also showing the name of the company in heavy black type.

Quite often your reader is very interested in changes at a particular company even though he may not be acquainted with the individual involved. This would allow the reader to scan the section and be able to readily spot the names of individuals and companies in which he has an interest.

K. A. Cruise
Material Manager
Bendix Aviation Corporation
Kansas City, Missouri

• *Readers of the column "Purchasing People In The News" will note that we have adopted Mr. Cruise's suggestion. To have your company in the black, send us promotions, additions, transfers, etc. We will print as many as space permits.*

READING, WRITING & PURCHASING

Dear Sir:

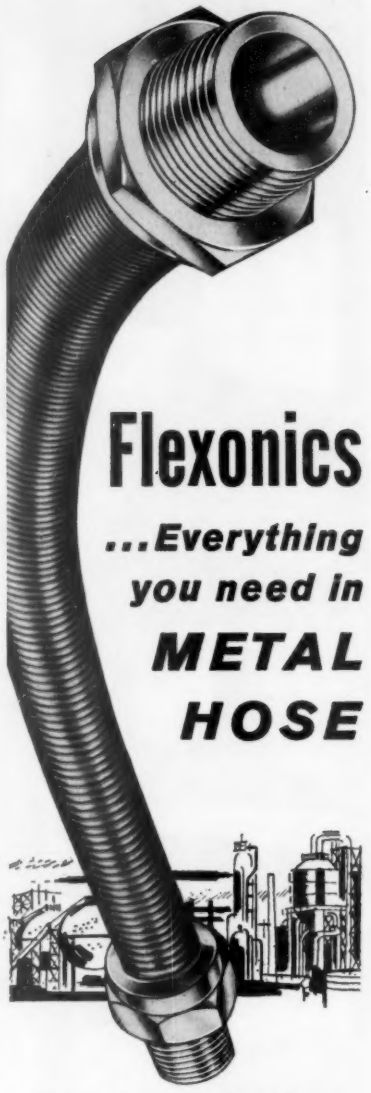
I am a student at the Northeastern University Graduate School of Business . . . I would appreciate your permission to incorporate the editorial "Career Men For Purchasing" into my thesis. . . .

Richard M. Murphy
Worcester, Mass.

Dear Sir:

I am a student of marketing at Indiana University . . . If you could supply any information on the history, background, activities and future of purchasing agents . . . I would be most grateful.

Albert Biales
Bloomington, Ind.



Flexonics
...Everything you need in METAL HOSE

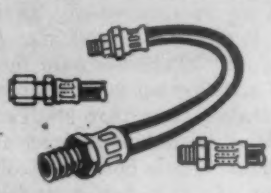
The most complete line of convoluted and corrugated metal hose in standard sizes–all materials. Complete assemblies . . . bulk hose . . . broad selection of couplings. Special engineering when required. Strategically located warehouse stocks for prompt delivery. Contact the Flexonics Field Engineer or write for Flexonics 12 page Metal Hose Catalog.

Flexonics
INDUSTRIAL HOSE
FLEXONICS CORPORATION
1316 South Third Avenue • Maywood, Illinois
Canada: Flexonics Corporation of Canada, Limited, Brampton, Ontario

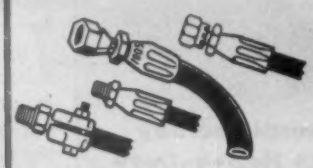
IH-318

YOUR ONE BEST SOURCE FOR

Everything in Hydraulic Hose

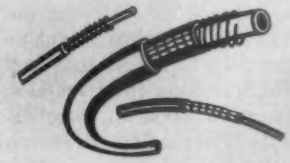


FACTORY PRESSED-ON ASSEMBLIES—Standard hose assemblies or to your specifications.

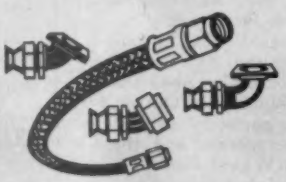


FIELD-ATTACHABLE FITTINGS—Popular for replacement . . . Easy-Grip hex requires no special tools.

BULK HOSE—Most complete range of types and sizes, for all industrial, automotive, and aircraft requirements.



LOW PRESSURE HOSE—Flexonics offers the most extensive line of low pressure hose available today.



TEFLON* HOSE—Flexonics offers a full range of stainless steel braided Teflon for steam and chemical applications.

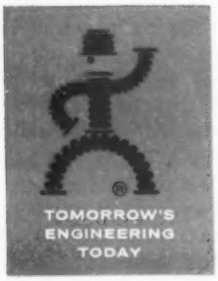
*DU PONT TRADE MARK

EXPERT ENGINEERING—To assist in the selection and design of hose assemblies for your application.

For hose, hose assemblies, couplings and adapters in all sizes and designs . . . depend on Flexonics. Skilled Flexonics application engineers have more to work with . . . have unparalleled experience in supplying every segment of industry. For large or small requirements—standard or special—consult Flexonics.

WRITE TODAY FOR DESCRIPTIVE LITERATURE

IH-310



Flexonics

INDUSTRIAL HOSE

FLEXONICS CORPORATION • 1316 SOUTH THIRD AVENUE • MAYWOOD, ILLINOIS

Divisions

INDUSTRIAL HOSE • EXPANSION JOINT • BELLOWS • AERONAUTICAL • AUTOMOTIVE

Flexonics Research Laboratories, Elgin, Illinois

In Canada: Flexonics Corporation of Canada, Limited, Brampton, Ontario

For More Information Write No. 189 on Inquiry Card—Page 32

Five Sizes for ⅛" to 6"

For General Use buy RIDGID Heavy-Duty Pipe Cutters

Factory tested for perfect tracking, here's your best cutter buy for hand use. Extra-long shank protects threads, gives fast, easy adjustment. Large handle for sure grip . . . more leverage. Strong, special malleable frame won't bend or warp. You'll also need the RIDGID Wide-Roll Cutter, that tracks perfectly at high power-drive speeds, and the RIDGID 4-Wheel Cutters, that give quick, clean cuts in tight places with only quarter turns.

Five Sizes for ⅛" to 4"

For Tubing and Thin-Wall Conduit buy RIDGID Tubing Cutters

Exclusive fold-in reamer on Nos. 10, 15 and 20 protects hands and pockets . . . reams full cutter capacity. Thin-blade wheel gives quick, clean cuts. Rollers smooth tubing ready for soldering. Special RIDGID No. 315 3-Wheel Cutter gives fast cuts in hard-to-get-at places.

There's a RIDGID Cutter to save you time on every job. Call your Supply House today!

RIDGID

The Ridge Tool Company, Elyria, Ohio, U.S.A.

For More Information Write No. 190 on Inquiry Card—Page 32

Letters

Dear Sir:

I am a graduate student in management at the University of Illinois . . . I am writing a thesis on the topic: Appraising Purchasing Performance In Manufacturing Industries.

I have read many interesting and informative articles in PURCHASING Magazine and would like your permission to quote from them in my thesis. . . .

Robert M. Groemling
Urbana, Illinois

• *In the past few years we have noticed an ever-increasing number of letters from students. It is gratifying to see not only that schools are offering more courses in purchasing but that students are taking an active interest in the courses. This is bound to have a telling effect; a better understanding and greater recognition of the purchasing function.*

PLEASE OMIT FLOWERS

Dear Sir:

I want to congratulate the entire staff of PURCHASING Magazine and especially Dean Ammer and C. D. Francisco on their articles, "The Forward Look In Purchasing" and "Purchasing Research Brings Big Profits." These were part of the Chrysler story in the January 19 issue.

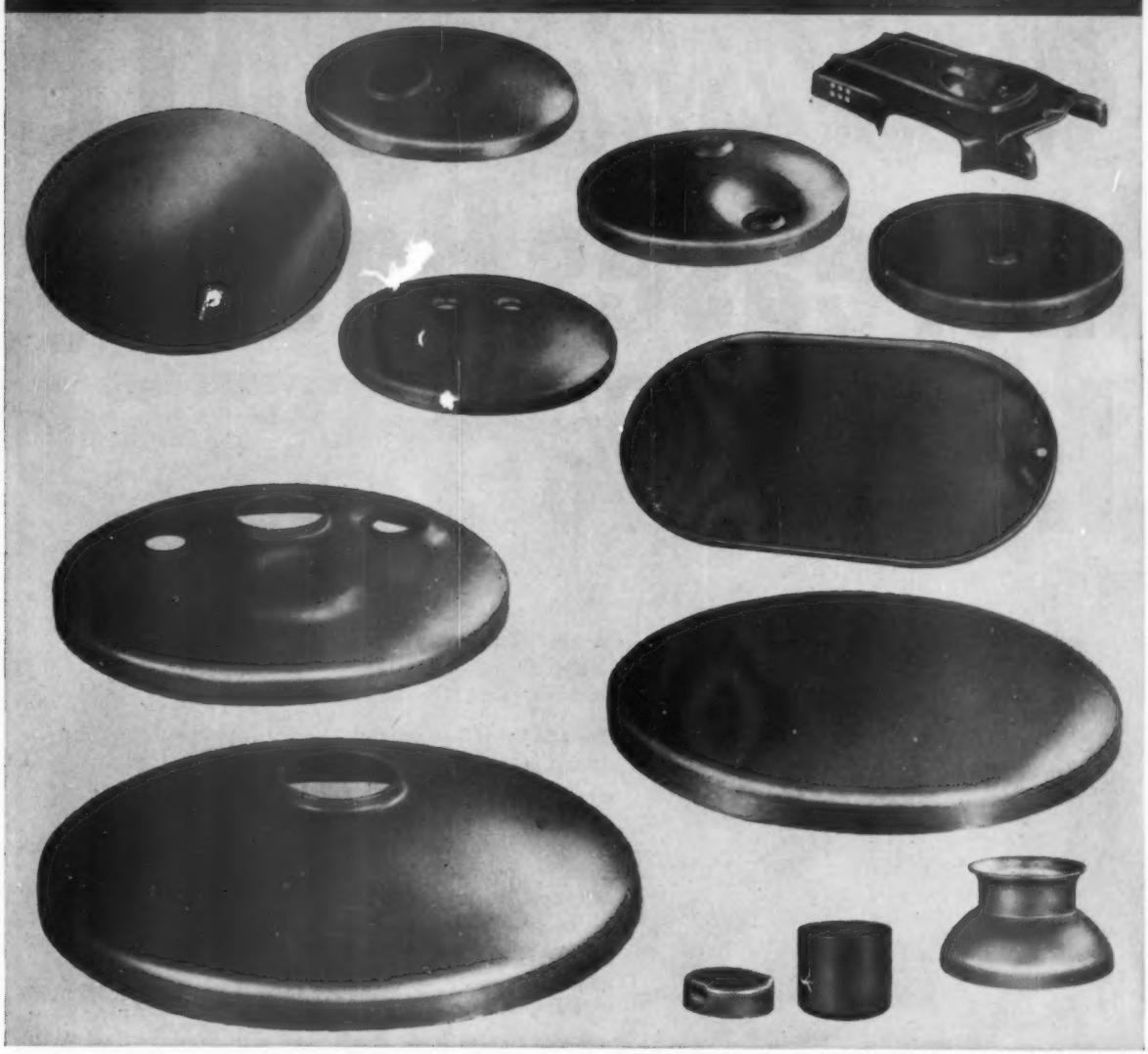
Sometimes I am unable to keep up-to-date in reading PURCHASING Magazine. However, I do definitely go over them all carefully. I cannot remember when I have seen or read an article as well done and with as much "food for thought" as was contained in the articles to which I refer.

I must admit that I am a little partial, because for a good many years I have driven only Chrysler products, but there is no doubt that Chrysler is extremely fortunate in having a man of Emlyn Lloyd's capabilities. I am of the firm belief that both of the articles are "must reading" for anyone connected with industrial purchasing.

W. W. Battilana
Vice President—Purchasing
East Coast Aviation Corporation
Lexington, Mass.

WHEELING STEEL

STAMPINGS BY ACKERMANN



Cut lead time...and parts inventory!

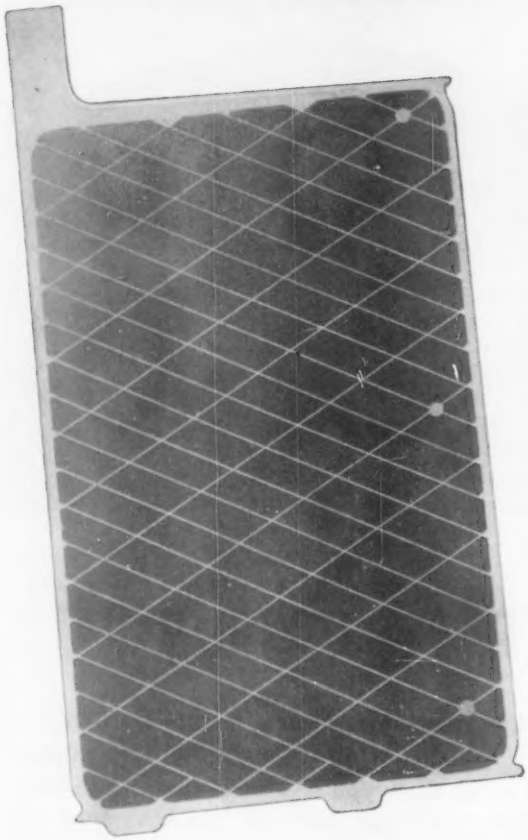
Jobs go more smoothly when Ackermann supplies the components. That's because Ackermann has modern equipment . . . metallurgical and engineering specialists as well as expert craftsmen. *Ackermann delivers on time, every time!*

More than that, Ackermann offers a wide range of components. Take boiler heads, for example. Ackermann supplies round heads from 6" up, as well as many other shapes, including obrounds.

Let us show you how Ackermann job-engineered stampings can save you both time and money. Ackermann Manufacturing Company, subsidiary of Wheeling Steel Corporation, Wheeling, West Virginia. **IT'S WHEELING STEEL**

For More Information Write No. 191 on Inquiry Card—Page 32

NEW GOULD *SILCONIC* PLATE Increases Battery Life 25%-FREE!



A vital contribution to motive power batteries, Gould's NEW Silconic Plate prevents grid corrosion, the most common cause of battery failure.

Sound, tested and proved, the principle is simply this: Gould introduces silver and cobalt into active materials of the positive plates. The silver and cobalt migrate to—and collect on—positive grid members, forming an insoluble oxide surface impervious to acid and oxygen attack. The longer the battery operates, the deeper the silver-cobalt penetrates into the grid metal, thus greatly prolonging life. In applications where batteries are idle for periods of time, Gould's Silconic Plate prevents migration of materials to the negative plate, effectively reducing self-discharge within the cell.

Further overall strength is achieved when arsenic is added to the antimonial alloy of the plate, resulting in an extremely dense, homogeneous grid free of flaws. This new physical and chemical strength—together with Gould's compact battery design—add up to the best motive power battery you can buy. Write today or call your local Gould representative. He's listed under "Batteries Industrial" in the yellow pages. Gould-National Batteries, Inc., Trenton 7, N. J.

More Power to you from **gould**

For More Information Write No. 192 on Inquiry Card—Page 32

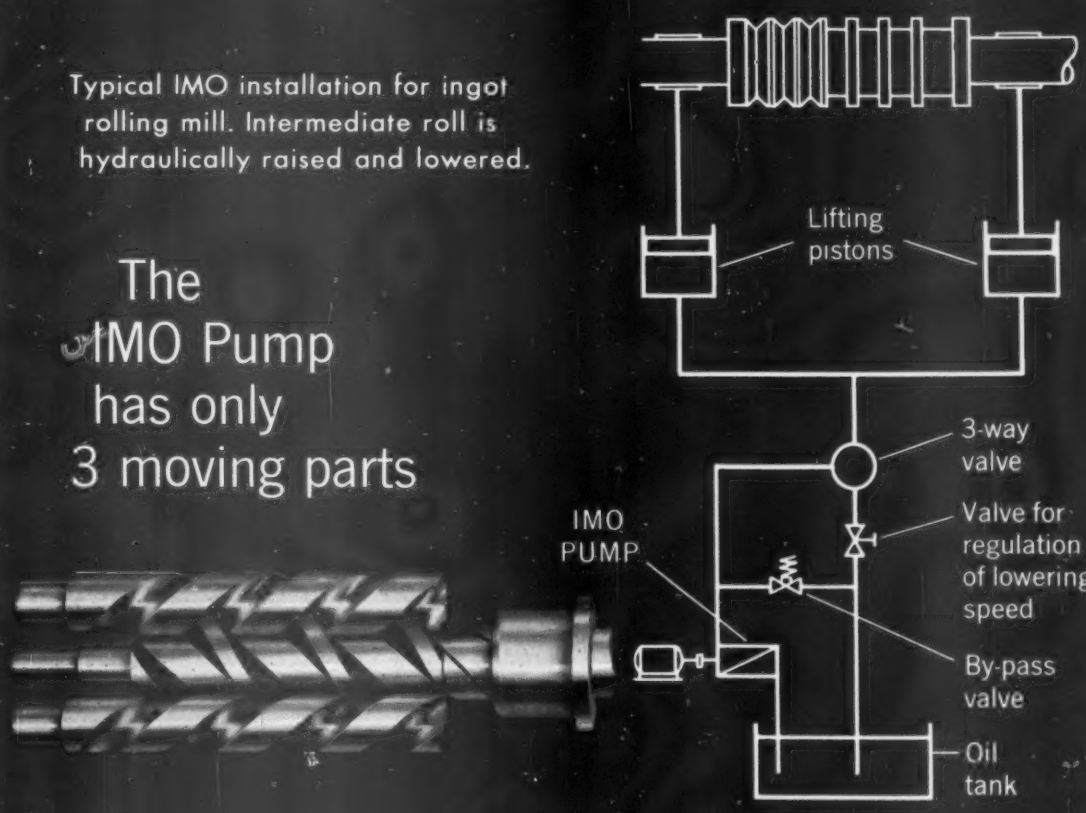
DE LAVAL
IMO PUMPS

for Power Hydraulics

If you require a hydraulic pump for actuating any kind of equipment—lifting, tipping, loading, bending, pressing, etc. —consider the IMO. Here are its characteristics:

- **Smooth power flow without pulsation**
- **Can be direct-driven at high speeds without reduction gears**
- **Thoroughly dependable and proved**
- **QUIET, smooth rolling action**
- **Easily installed**

Typical IMO installation for ingot rolling mill. Intermediate roll is hydraulically raised and lowered.



The IMO Pump has only 3 moving parts

DE LAVAL *IMO Pumps*

DE LAVAL STEAM TURBINE COMPANY
807 Nottingham Way, Trenton 2, New Jersey

DL-455

For More Information Write No. 193 on Inquiry Card—Page 32

A good steel supplier will know as much about your requirements . . .

as you know about your customer's requirements

The Granite City Steel salesman assigned to your account spends much of his time studying your business, finding out what you make and how you make it. This knowledge enables him to give you more helpful, personalized assistance.

Is that the kind of steel service you're getting now? If not, remember that Granite City Steel is more than a dependable source of quality, flat-rolled carbon steel products. Our aim is to *serve* you . . . not just sell you.

GRANITE CITY STEEL

STEELMAKERS TO MIDDLE AMERICA

Ingots, Slabs and Plates • Hot and Cold Rolled Sheets • Porcelain Enameling Sheets • Electrical Sheets • Electrolytic Tin Plate • "Strongbarn" and Industrial High-Tensile Galvanized Corrugated Steel Roofing and Siding • Galvanized Culvert Sheets • Galvanized Flat Sheets.

HOME OFFICE: Granite City, Illinois • SALES OFFICES: Dallas • Memphis • Kansas City • St. Louis Minneapolis • Houston • Moline • Tulsa

SINCE GRANITE CITY STEEL 1878

For More Information Write No. 194 on Inquiry Card—Page 32

Purchasing People In The News

Weber Addressing Machine Co., Inc., Mount Prospect, Ill., has announced the appointment of **Howard J. Schalla** as purchasing agent. Mr. Schalla has a background of over 13 years in pur-

Howard J. Schalla

chasing. Previously he was with the Hotpoint Company as senior buyer in the Relations and Utilities Division. He had responsibility for purchasing maintenance and utility items for eight Hotpoint plants.

A number of promotions in and additions to the staff of the purchasing department of **Eaton Manufacturing Company, Cleveland, Ohio,** were announced by H. A. Williams, director of purchases.

R. H. Shelley, formerly a buyer in the Axle Division, has been given increased buying responsibilities at the Pump Division. **R. E. Risheill** has been advanced from buyer at the Pump Division to the Axle Division purchasing department as a senior buyer. **H. B. Gordon,** a production buyer at the Axle Division, has been appointed purchasing agent at the Stamping Division. **E. F. Knappe, Jr.** has been transferred from the sales department of the Spring Division to supplies buyer in the Axle Division. Previous to his assignment in the sales department, Mr. Knappe was a buyer-trainee in the purchasing department at the Spring Division. **Robert Gale** has been appointed assistant purchasing agent of the Axle Division. Mr. Gale was formerly supervisor of supplies purchases. He has been replaced in that capacity by **P. R. Marke, Jr.**, previously a buyer in the supplies section. In addition to these transfers within the company, **T. T. Habzda** has been added to the Axle Division purchasing department as a buyer of production parts. Mr. Hadzda comes to Eaton with a background in automotive purchasing, including experience with Ford Motor Company.

Bowmar Instrument Corporation, Fort Wayne, Ind. has announced the appointment of **R. J. Stratman** as purchasing agent for the company. Procurement of all raw materials, parts, processing and equipment for use in Bowmar's precision speed reducers and gear heads, counting devices

R. J. Stratman

and electromechanical servomechanisms and servo packages will be handled by Mr. Stratman. He comes to Bowmar from the Avionics Division of John Oster Manufacturing Company. He has had ten years experience in the purchase of all types of materials for rotating mechanisms servos, synchros, tach generators and associated components in the missile, aircraft and related industries.

E. C. Scoville has been named director of purchases for **Arthur G. McKee & Company, Cleveland, Ohio.** Mr. Scoville succeeds **T. W. Rutledge** who is retiring after 43 years with the company. Joining the McKee Company in 1925 as an engineer, Mr. Scoville

E. C. Scoville

became purchasing agent in 1947. He became acting director of purchases in 1958. Well versed in foreign purchasing procedures, he spent considerable time in many European countries during the construction of several plants there by McKee.

The Textileather Division of **The General Tire & Rubber Company**, has announced the appointment of **John M. O'Grady** as purchasing agent. Mr. O'Grady has been with General's Respro Division in Cranston, R. I. for 28 years. He has been purchasing agent the past 17 years. Mr. O'Grady who is a member of the Purchasing Agents Association of Rhode Island will make his headquarters in **Toledo, Ohio.** He will be responsible for all procurement for Textileather.

MODERNIZE CHOOSE HOISTS THAT SAVE THE MOST

You name the hoisting problem. Whatever the requirements, there's an MMM hoist to handle your lifting with money-saving efficiency. Call your nearby Shaw-Box Distributor for practical help in selecting the best type of hoisting equipment for each load handling task. Or, write us for literature.

AIR HOISTS

Load Lifter Air Hoists with wire rope load line. 1 to 15 tons. The 5-cylinder radial motor has a high starting torque; provides smooth operation at all lifting speeds. Speeds infinitely variable to 37 FPM, depending upon capacity. Pendant cord control standard; throttle control available. Mechanical load brake never needs adjustment. Compact design results in low headroom advantages. Lug, push trolley and hand-geared trolley suspension.

Budgit Air Hoists. ¼, ½ and 1 ton. Compact and light in weight. Link and roller chain types. Explosion proof motor cannot burn out. Spark and corrosion resistant link chain type models. Speeds infinitely variable to 75 FPM, depending upon capacity. Pendant cord control. Safety hooks standard. Rigid mount type and push trolley available.

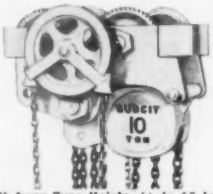
ELECTRIC HOISTS

Load Lifter Series "700" Wire Rope Electric Hoists. ½ to 15 tons. Fast, heavy-duty hoists with two automatic brakes and safe 24-volts at the push-button control. Two-speed models for spotting fragile loads safely. Lug suspension and push, hand-geared and motor-driven trolleys available. Hi-hook model increases length of lift.

Load Lifter Series "600" Wire Rope Electric Hoists. ½ and 1 ton. Low headroom construction. Tough, light-weight hoists that speed production processes. Separate load and motor brakes act simultaneously. Single and two-speed models with 24-volt push-button stations. Lug or hook suspension; push and motor-driven trolleys available.

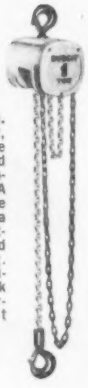
Budgit Electric Hoists. ⅛ to 2 tons. Complete, low-cost hoists for fast load handling service. Come ready to hang up, plug in and operate. Use little electricity. Pendant cord control standard. Separate motor and load brakes act simultaneously. AC, DC and 12-volt battery-operated models. Hook suspension. Trolleys available.

HAND HOISTS



Budgit Army Type Hoists. ¼ to 10 tons. Integral push, hand-geared trolleys are adjustable to fit I-beams in a number of sizes. Low headroom design permits high hook lift. Efficient spur gearing and load brake speed hoisting action. Extensive use of strong aluminum alloys saves weight and reduces effort needed to travel the hoist. Spark and corrosion resistant models available.

Budgit Chain Blocks. ¼ to 10 tons. Light, tough aluminum frame seals in spur-geared mechanism and automatic load brake. A 25-lb. pull on the hand chain lifts a 500-lb. load. Fast acting brake speeds and simplifies lowering. Hook suspension. Trolleys available. Ask about spark and corrosion resistant models.



Tugit — the Lever-Operated Hoist. ¾ to 3 tons. A spur-geared, light-weight lifting and pulling tool you can carry around. Has a thousand and one uses. Operates easily at any angle, even in close quarters. A 42-lb. pull on the handle lifts 2 tons. Spark and corrosion resistant models.

Budgit Differential Hoists. ¼, ½ and 1 ton. A durable, low-priced lifting tool for occasional use where high efficiency is not required. The aluminum alloy yokes assure both lightness and strength. Precision machining makes operation easy and compactness saves headroom.

Budgit Roller Chain Block. ¼ to 2 tons. Spur-geared for highest efficiency. A pull of 45 lbs. on the hand chain lifts ½ ton. Light and strong. Mechanism enclosed in sealed housing — operates in grease. Automatic brake holds load safely at any desired point.

Budgit Trolleys. ¼ to 2 tons. Travel the hoist smoothly on ball bearings. Adjustable to fit I-beams of several sizes. Spark and corrosion resistant models.

Budgit Hi-Cap Trolleys. 3 to 20 tons. Adjustable push type. Wheels have crowned treads for easier movement, longer wear. Bumpers protect wheels. No lubrication required. Spark and corrosion resistant models.

Budgit Geared-Type Trolleys. 3 to 20 tons. Adjustable to fit 8" to 24" I-beams. Easy action geared drive wheel and guide are weatherproof aluminum alloy. Hand chain is cadmium plated. Spark and corrosion resistant models.

Budgit Cord Reel. Keeps hoist conductor cord out of the way. Reels off in any direction. Also useful for portable tools with polyphase motors to 7½ hp.; single phase to ½ hp.

Budgit Conductor Cord Trolley. Used in any number to hold hoist or other conductor cord aloft on monorail systems and crane I-beams.

Budgit Gantry "A" Frames. 1 and 2 tons. For low-cost mobile lifting service. Caster equipped. Shipped knocked down. Easy to assemble with I-beam purchased locally.

59L-4

MAXWELL MM&M MANNING & MOORE, INC. TRADE MARK

OVERHEAD LOAD HANDLING EQUIPMENT

Products of

MANNING, MAXWELL & MOORE, INC.

Shaw-Box Crane & Hoist Division • Muskegon, Michigan

In Canada: Manning, Maxwell & Moore of Canada, Ltd., Galt, Ontario

JUST OUT! 52-page book...

with exciting color illustrations and design details

Here's a book that offers new design ideas, new uses for stainless steel in building. "Architecture and Allegheny Stainless" brings you up-to-date on the latest professional developments . . . with full-color illustrations of buildings just completed or still under construction.

Specific data, with pictures and design details, illustrate such stainless applications as curtain wall construction, store fronts and entrances, windows, hardware, roofing and others.

Evidence enough that modern architecture's demands are more than matched by the strength, quiet beauty and corrosion-resistance of Allegheny Stainless.

"Architecture and Allegheny Stainless" is filled with facts vital to everyone concerned with architecture and buildings. Write today for your free copy. *Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.*

Address Dept. P-17.

WSW-7513

ALLEGHENY LUDLUM

for warehouse delivery of Allegheny Stainless, call RYERSON

Export distribution: AIRCO INTERNATIONAL

EVERY FORM OF STAINLESS . . . EVERY HELP IN USING IT

AL

← For More Information Write No. 195 on Inquiry Card—Page 32

For More Information Write No. 196 on Inquiry Card—Page 32

NEW FROM CONTINENTAL

HI-STACKER

utility can with reversible spout

Saves time, space, filling and shipping costs

The spout is inverted during shipment and storage. To pour, just reverse spout. Fast smooth dispensing. Ask for details.

Looks like Continental's famous dome top utility can (at left). Completely redesigned to save you time and money.

CONTINENTAL CAN COMPANY

Eastern Div.: 100 E. 42nd St., New York 17
Central Div.: 135 So. La Salle St., Chicago 3
Pacific Div.: Russ Building, San Francisco 4
Canadian Div.: 5595 Pare St., Montreal, Que.
For More Information Write No. 197 on Inquiry Card—Page 32

FOB—"filosofy of buying"

IF THEY STEAL secrets from us, why can't we steal secrets from them?

Here's a direct quote from instructions to the Soviet people given over the Moscow radio. If we purchasing people can apply these instructions to our own operations, we have the most secret of secret weapons:

"A smile—fine, bright, welcoming—not only adorns a person but it warms the soul (What's this?—Ed.) of those for whom it is intended and those who see it.

"A tactful solicitous approach, an encouraging word, or simply a smile are at times so necessary to a person.

"But why does it sometimes happen that, instead of a smile of gratitude on meeting the conductor or the sales assistant, irritation and glumness appear on your face? Is it really so difficult always to be attentive, thoughtful, tactful, and polite?"

• •

YOU MAY not believe it, but there are tragedy, comedy, mystery in the purchasing job. Just let your eye run over and your imagination play with these fascinating items taken from the list of commodities bought last year by the purchasing department of the City of Atlanta, and mentioned in P.A. Ernest J. Brewer's annual report:

1,476 long union suits; 15,500 pounds of white grits; 20,000 pounds of black-eyed peas; 3,000 pounds of calf Starteena; 75 pairs of night pants; 2½ ounces of Tops All Cannibal Mix; 25 pounds of catnip; two dozen tear gas grenades; 18,000 phenobarbital tablets.

You'll have to ask Mr. Brewer if you want to know more details about some of those items. The only one we're really familiar with is the last one.

John Krieg, purchasing agent for the City of Cincinnati, goes literary to convey the same sense of excitement inherent in buying for a big city. The "Finale" of his latest annual report reads:

"While to some purchasing might connote dull figures and voluminous paperwork, accompanied by frustration and tension, all of which are necessary evils, as inescapable as death and taxes, it is always a challenge to acquire the lowest prices on materials of the best quality suited to the needs of the using agencies. In addition to combatting rising prices by ingenious methods, we had our share of the thrills of exploration, invention, investment in the future, and humor. In the course of one day we might be called on to buy items ranging from diapers for premature babies to muslin for the shrouding of a body dragged from the Ohio River, along with such unrelated items as rental of a moorage space on the river for a city-owned scow; the services of a taxidermist to mount bird skins; stale bread to feed ducks; burglar alarm systems, etc.

"No—purchasing is never dull."

• •

MOVING can be fun—at least for the kids — according to The Mead Corporation. It has just designed a new corrugated shipping container that converts to a sturdy toy house. The container-toy idea was developed by Mead in conjunction with James D. Edgett,

"Oh goody . . ."

This toy house was once a corrugated shipping container. Could you have guessed?

president; Don Coffman, purchasing agent; and Louis Hoffman, advertising manager, of North American Van Lines. Once the container has been emptied at the new home, all little Two Gun Pete has to do is cut and fold a few flaps and he has a "stage depot and hotel." Other buildings soon to be added to the line: a blacksmith shop and a casino.

• •

AIN'T NOBODY in here but us eggs. A man trying to sell his wholesale egg business through the classified columns of the New York Times starts his ad:

"I wish to sell my profitable business.

"My yearly sales are about $750,000.

"I have nothing to do with chickens."

• •

THE PEOPLE who run the National Business Show in New York every year are naturally greatly interested in how much the exhibits influence the plans of buyers of office equipment and supplies. Toward the close of last year's show, one of a team of interviewers approached a visitor. "Can you tell me, sir," he asked, "about how much you may spend next year on equipment you've seen at the show." "'Bout four million dollars," was the casual reply. The interviewer recovered quickly when he realized he was talking to the office equipment buyer of New York State.

Our special business is specials . . . special fabricated wire cloth parts made to your specifications. We save you time, we save you overhead, we save you production worries. And, you get a better part at a lower cost.

We weave our own cloth . . . your guarantee of quality components. We are fully equipped to do all necessary cutting, shaping, fitting, welding, soldering, punching, binding, etc.

For more information on this "One-Stop" Wire Cloth Parts Service, send for our latest Parts Catalog.

See us at Booth 1604
Design Engineering Show

NEWARK for ACCURACY

Newark Wire Cloth COMPANY

351 VERONA AVENUE • NEWARK 4, NEW JERSEY

For More Information Write No. 198 on Inquiry Card—Page 32

DOW | **Industry's Chemicals:**

WHAT'S MAKING NEWS?

Grandmother used to throw a pinch of this and a pinch of that into her cooking to give it that certain zest. Modern industry uses the same technique in producing distinctive products of all types. Of course, industry has developed standards of measure more accurate than a "pinch" . . . and now has available a selection of chemical "seasonings" that would make any grandmother envious! Many Dow chemicals are used to give products that "extra something". News about a few is reported on briefly below.

You may wish to check certain items in this advertisement and forward to those concerned in your company.

ROUTE TO:

_____

_____

_____

_____

POLYOLS: Hard-working "go into's" improve products in 1,001 ways

Chances are you'll never go down to the corner drugstore with "Get Polyols!" on a shopping list. You won't have to! Industry remembers for us—and puts these chemicals to work in thousands of ways, as important ingredients in a final mix.

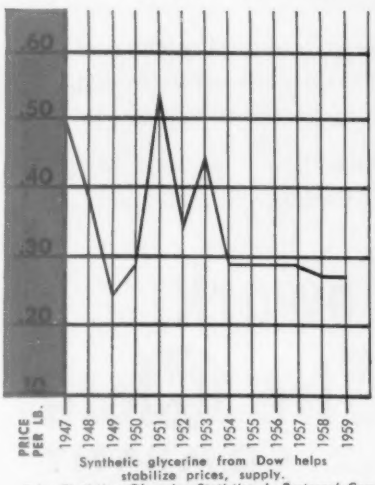
For the Polyols are *intermediates*—they "go into" other things as an intermediate step between initial material and final product. And, though you ordinarily don't see them, Polyols make a great ultimate difference to the products—and profits they enhance.

Chemically, of course, Polyols are alcohols (as a chemist would say, "They have two or more hydroxyl radicals"). They are chemical middlemen, intermediates, that go into thousands of product and process recipes—usually to make a powerful profit difference. For exhibit A, take glycerine . . .

Sweet supply problem. Probably the best-known member of the Polyol family is glycerine. Natural glycerine's history goes back many years. Even in ancient times the Greeks had a word for it—*glykeros*, meaning sweet. Its pleasant taste helps make many foods and pharmaceuticals palatable and salable.

But price and supply of this valuable chemical were notorious for their roller-coaster unreliability. The only thing they could be depended on for, was to throw any carefully calculated profit picture out of focus. For the last two centuries glycerine was available chiefly as a by-product of soap. And in time of war, when glycerine was commandeered to make nitroglycerine, dynamite and other explosives, supply was even more stringent.

As recently as the Korean War, glycerine prices and stocks fluctuated so violently that many discouraged users tried to reformulate in order to get along without this nearly indispensable ingredient. Then came a history-mak-

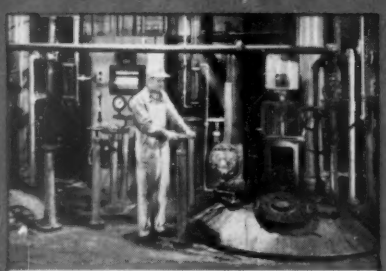


Synthetic glycerine from Dow helps stabilize prices, supply.

Price Statistics: Glycerine Statistics, L. Pasternak Company, 1947-1951; Journal of Commerce, 1952-1959

Highlights on the

PHARMACEUTICALS
Dow's pharmaceutical chemicals form the foundation for many medicines. These chemical intermediates have applications ranging from aspirin to many of today's better drugs.



DOWTHERM®
This highly efficient organic heat-transfer medium provides fraction-of-a-degree heat control (350°F.-750°F.). As a low-pressure vapor, it helps processors obtain more uniform products economically.

ing event in industrial chemistry—the advent of synthetic glycerine production.

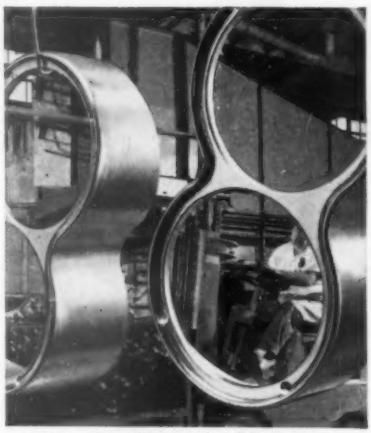
Polyol flattens crazy price curve. Practical synthetic glycerine production was achieved in 1947. When Dow's first major synthetic plant went on stream a few years later, market price and supply stabilized. The by-product bottleneck was broken. Ever since, they have remained steady—and will continue to do so. For the Polyols: score a real assist in many industrial profit pictures!

Other profitable Polyols: One everyone knows is the major ingredient of so-called "permanent" antifreeze—ethylene glycol. Dow's efficiency in production of this important Polyol has made it vastly more profitable for many of the major oil and automotive companies who use and/or sell this chemical to "let Dow do it" when it comes to manufacture. Result: an improved profit picture on this staple for many U.S. companies, with lower costs, better products.

The list of Polyols being profitably employed by industry is legion. The polypropylene glycols are a valuable workhorse in the production of urethane foams . . . the polyethylene glycols are invaluable as carriers in the cosmetics and pharmaceutical industry . . . the propylene glycols . . . diethylene and triethylene glycols . . . dipropylene and tripropylene glycols . . . the polypropylenes . . . all have indispensable special talents. You name it and it's sure to be one that Dow "makes the most of".

Put them to work! The valuable Polyol family is a problem-solver for industry. And the answers—specific Polyols—come in dozens of variations of physical form and molecular weight. Because Dow makes more kinds of Polyols than any other producer, they are most likely to have the one that fits your needs. And Dow is constantly developing new ones. If existing Polyols do not precisely fit your needs, Dow chemists go whistling to their work of formulating one that will fit the product or process like a glove.

Because Dow is most *basic* in producing Polyols (controlling all the basic raw materials) the number and variety of new Polyols it can create are literally unlimited!



Dow offers industry's widest range of chlorinated solvents.

The case for BETTER SOLVENTS

Two firms, both about the same size, produce similar metal parts. One prospers, the other doesn't. Why? The answer may lie partially in their *solvent* position . . . not the financial kind, but the solvents they use in preparing parts for finishing. Putting the right solvent to work at a specific task can save thousands of dollars a year. These savings can be realized through more efficient solvent use and recovery, the elimination of parts re-runs, better finishing and improvement in other production factors.

Dow helps trim finishing costs in two important ways. First, by offering an exceptionally large selection of specialized metal cleaning solvents. For vapor degreasing, there are NEU-TRI* and ALK-TRI*, two of Dow's grades of trichloroethylene, as well as Dow perchloroethylene, and for stripping, Dow methylene chloride. For maintenance cleaning of all types, Chlorothene®, the efficient, safer, cold cleaner. Secondly, Dow and Dow solvent distributors offer technical service on metal cleaning problems to aid plants in the most efficient use of Dow solvents.

*TRADEMARK OF THE DOW CHEMICAL COMPANY

More citrus fruit SURVIVES THE RIDE

The time it takes for citrus fruit to get from growers' trees to consumers' tables has always been a problem. Perishables such as oranges, lemons and grapefruit undergo a certain amount of spoilage in their travels. Now spoilage can be controlled—and held to a bare minimum by treating fruit with formulations containing Dowicide® A. Dowicide A is one of fourteen specialized chemical preservatives produced by Dow. With this helpful new treatment, shipping losses have been considerably reduced . . . up to 85% in some cases.

Application is easy, inexpensive and formulations using Dowicide A won't harm machinery. Protection costs prove to be well worth the economic gain, especially for stored fruit where spoilage is cut as much as 40%.

* * * *

IS THE RECIPE for your products and processes as good as it can possibly be? If not, you may want to know more about the Dow chemicals discussed in this advertisement. For more information, write to THE DOW CHEMICAL COMPANY, Midland, Michigan, Chemicals Merchandising Department 600EE5-25.

CHEMICAL HORIZON

PENTACHLOROPHENOL
Grigg Motor Sales, Charlotte, N.C. 40' x 135' building erected on Penta-treated poles for $2.00 per square foot, excluding heating, electrical. Cost includes concrete floor, block wall, showroom windows.

CAUSTIC SODA
Dow's five producing plants and nine shipping terminals efficiently supply caustic in solid, ground, flake, 50% or 73% liquid form to Dow customers throughout the nation.

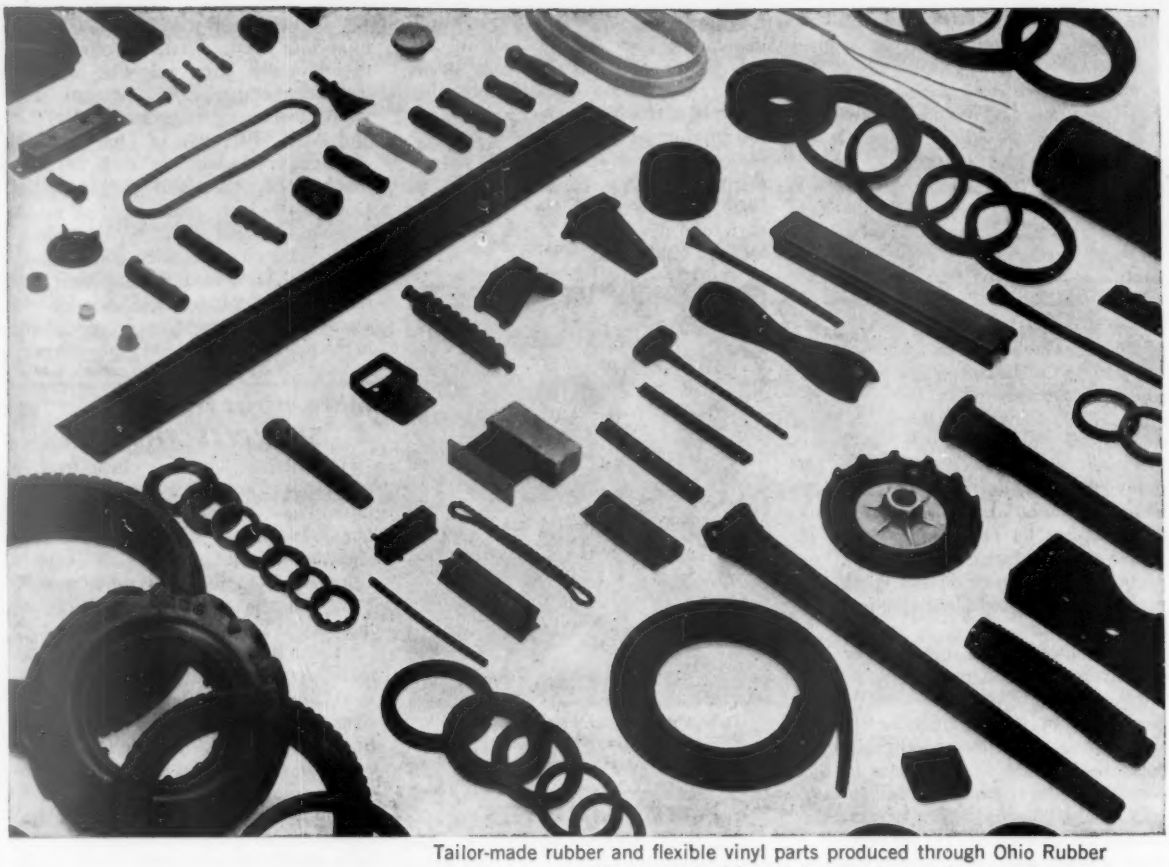
DOW CHEMICALS
basic to industry

Glycols, Glycol Ethers
Amines and Alkylene Oxides
Benzene Derivatives
Inorganic Chlorides
Alkalies and Bromines
Solvents • Germicides • Fungicides
Herbicides • Fumigants
Hundreds of other Chemicals
Plastics • Magnesium

THE DOW CHEMICAL COMPANY
MIDLAND, MICHIGAN

DOW

For More Information Write No. 199 on Inquiry Card—Page 32



Tailor-made rubber and flexible vinyl parts produced through Ohio Rubber "Customeering" for original equipment in every industry.

How OHIO RUBBER fashions more profitable PARTNERSHIPS

An Ohio Rubber "Customeering" engineer may start with your blueprint, but he begins saving you money *after* he checks your performance requirements—what you need, where and how you'll be using your component part.

Your savings start with his recipe for the material which goes into your part. Only the essential properties required for the better performance of *your* product will be included—you will not be buying properties you don't need.

The ORCO engineer's recommendations for feasible design modifications will further help produce a better part, frequently at big savings to you.

Combined with Ohio Rubber's integrated mold and die service, complete facilities for molding, extruding, and bonding to metal, here's a profitable partnership you may want to consider for your custom-made parts of rubber, synthetic rubber, silicone rubber, polyurethane, or flexible vinyl—one that offers all the advantages of single source control and responsibility.

Suggestion: The more complete story behind Ohio Rubber's long-standing and profitable partnerships with leading original equipment manufacturers is more fully told in ORCO Bulletin 715. Write for your free copy today! 9MP1

ORCO

THE OHIO RUBBER COMPANY

WILLOUGHBY, OHIO

A DIVISION OF THE EAGLE-PICHER COMPANY

EAGLE EP PICHER

For More Information Write No. 200 on Inquiry Card—Page 32

Highlights of This Issue

You, Your Vendors, And Automation

Automation—in the plant and in the office—goes its merry way, and there's understandable concern as to its effect on production, employment, etc. There's another aspect to it that demands attention but hasn't received much: the strain your automated factory and office will put on the supplier to maintain adequate and consistent deliveries. What automation means to the P.A. and his vendors is analyzed in our continuing series on materials management. **See page 69.**

The Computer in Purchasing

There's going to be a computer of some sort in your business life before long, so it's a good idea to keep up on what one of these electronic "brains" can do for purchasing. **See page 73.**

Good Forms

Despite the inroads of magnetic tapes and electronic tubes, purchasing still travels on its paperwork. For sound, successful methods of designing and using basic purchasing forms check our regular Forms Forum. **See page 90.**

Can You Use Copper Alloys?

Unless you have years of experience in buying copper alloys, you'll be surprised at how many there are and how widely they can be used. One of the country's top experts tells you all about them in the latest of our series on basic commodities. **See page 82.**

Value Buying in a Big Way

Purchasing people in any size company will be interested in a straight-from-the-shoulder description of what value buying means to a corporation that spends hundreds of millions of dollars with thousands of suppliers. **See page 78.**

Coming in Future Issues

June 8—Value Analysis Issue

June 22—A complete, up-to-the-minute report on the N.A.P.A. Convention

Long length drills for general purpose drilling!

ACE

TAPER LENGTH DRILLS

Feature for feature, you can't beat Ace Taper Length Drills. First, because they're made of the finest quality high speed steel properly heat treated to assure the ultimate in uniform hardness. Second, because they're produced by the Ace-originated "ground-from-the-solid" process to give them smoother, more highly polished flutes with keener, stronger cutting edges. And finally, because they cut faster, last longer, give you more production per drill at lower cost.

Call your local Ace Drill Distributor today!

NEW CATALOG covers the entire line of Ace "Ground-from-the-Solid" High Speed Steel and Carbide Drills, Reamers, Drill Blanks and Special Drills. Send for it today!

ACE DRILL

ADRIAN, MICHIGAN

ORIGINATORS OF "GROUND-FROM-THE-SOLID" DRILLS

For More Information Write No. 201 on Inquiry Card—Page 32

"SPECIAL" Welding Fittings

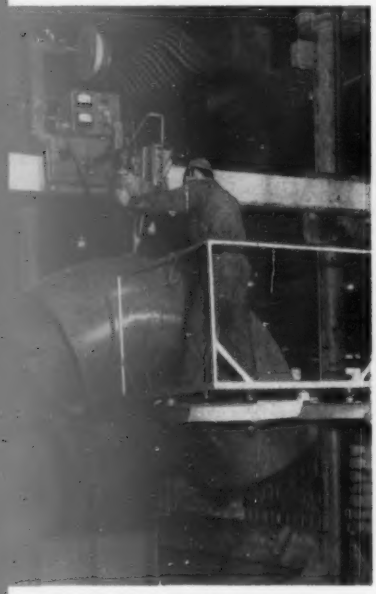
by MIDWEST

"SPECIAL" DESIGNS
"SPECIAL" MATERIALS
"SPECIAL" QUALITY
"SPECIAL" DEL"/ERY

Special gauges and instruments are used to make sure that we have complied with the extremely close tolerances often required on stainless fittings. Here wall thickness and concentricity were held within extremely close limits throughout the fittings.

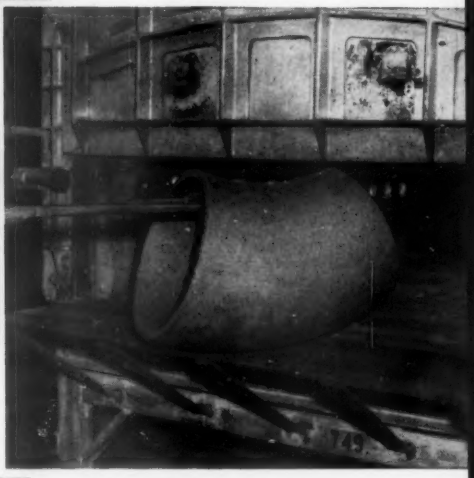
The exclusive Midwest method of manufacture—much more versatile and flexible than any other—enables us to make almost any type of special welding fittings to the most rigid specifications. Midwest makes welding fittings from *plate* . . . usually much easier to get than pipe, particularly if the material is special. That expedites delivery. Closer tolerances are inherent in the Midwest process, and quality control is always beyond code requirements.

Even if you use only standard fittings, the exceptional quality of Midwest fittings can be important to you. Ask your Midwest distributor or write us for new Bulletin 5801.



36" O.D. 90° elbow with 16" tangent on one end being welded by an automatic submerged arc machine. Material is A-201 carbon steel.

Stainless-clad elbows undergoing ultrasonic inspection to check bonding of material and quality of weld. Since plate is often the only form in which clad material is available, the Midwest process is able to produce the most comprehensive range of clad fittings—and to do so promptly.



Special 24" x 21" 45° reducing elbow made of 1" thick 1¼% chrome ½% moly steel ready for heat treating furnace.

MIDWEST PIPING COMPANY, INC.

Main Office: St. Louis 3, Mo. (P. O. Box 433)

PLANTS: ST. LOUIS, CLIFTON, N. J. and LOS ANGELES

SALES OFFICES:

Asheville (Box 446, Skyland, N.C.) • Atlanta 9—72 11th N.E. Boston 27—426 First St. • Chicago 3—79 West Monroe St. Cleveland 14—616 St. Clair • Houston 2—1213 Capitol Los Angeles 33—5219 Anderson • Miami 34—2103 Le Jeune New York 7—50 Church St. • Pittsburgh 19, Pa.—437 Grant San Francisco 11—420 Market St. • St. Louis 4, Mo.—1450 South Second St. • Tulsa—1640 E. 21st St.

8059

• Write No. 202 on Inquiry Card—Page 32

So What's New?

IT WOULD be a pretty poor P.A. who complained about the current interest and enthusiasm in investment casting because Benvenuto brought the process to near perfection 400 years ago.

The same judgment would have to be passed on one who refused to consider a new calculating machine for his department because Blaise Pascal and Gottfried Liebniz invented the first practical ones in the 17th century.

And you'd have nothing but contempt for the person who asks what's so great about rockets and missiles. Didn't the Greeks have them around 100 B.C.? Didn't R. H. Goddard explore almost every phase of modern rocket development long before World War II?

This kind of obscurantist thinking is rare in the upper echelons of American business. A successful executive knows it's literally true that there's nothing new under the sun. Science and industry progress by building—open-mindedly and imaginatively—on the research of others. Our achievements are based primarily on refinements and adaptations of basic principles.

That's why it's a little disconcerting to see some purchasing executives tilting their noses at the "new ideas" that have taken hold in purchasing recently. What's all the uproar about Value Analysis, Materials Management, E.O.Q., etc., they ask. Any good buyer has been using these things for years, they claim, without dolling them up with fancy Madison Avenue-type labels.

Perhaps this is true. Some of the advances in purchasing science described in these pages were being experimented with by somebody 20, 30 or 40 years ago. And there's no denying that a good buyer is always, consciously or unconsciously, analyzing values, managing materials, or trying to determine the most economical order quantities.

But the relatively awkward and disorganized efforts of a good buyer don't make him a better buyer unless he refines them by constant study, analysis and practice. A sandlotter who takes it easy once he discovers he has a good eye, a broad back and a fine set of wrists will never become another Ted Williams.

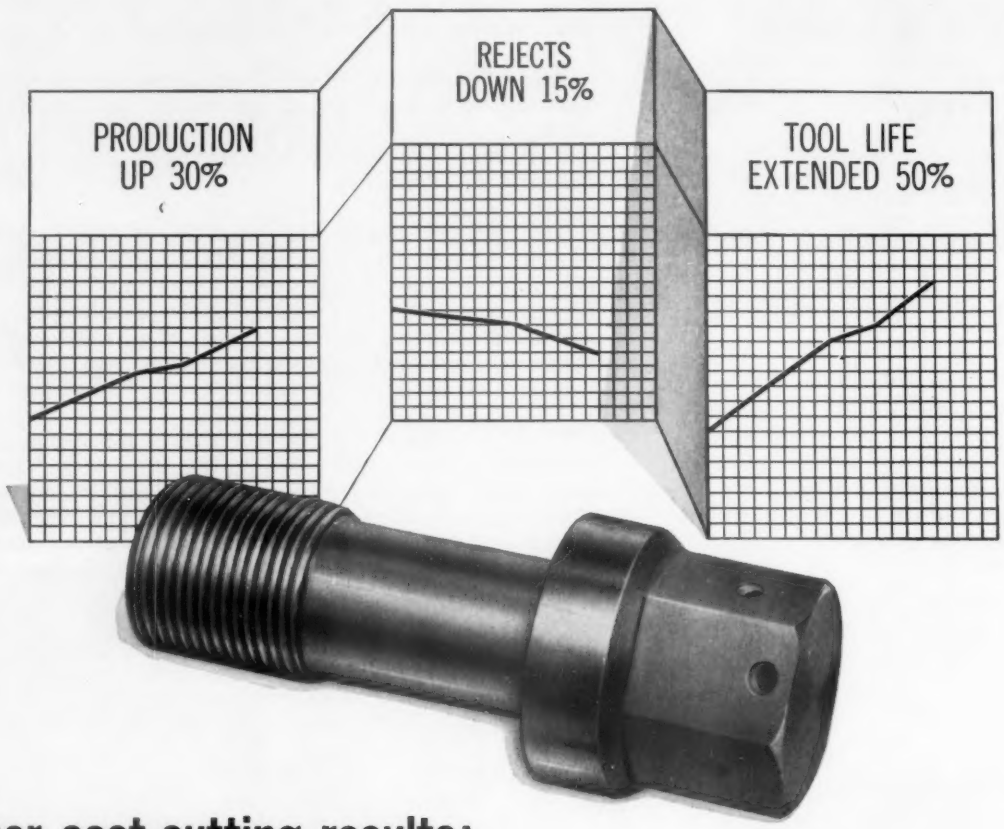
Resistance to more highly-developed purchasing concepts may indicate extreme sensitivity on the part of some P.A.'s. They may feel others are getting credit for a job they've been doing all along. But the really mature person is always open to suggestion, to comparasion, and to change. And purchasing maturity was never more needed than now.

Paul V. Farrell

PURCHASING MAGAZINE
MAY 25, 1959

Value analysis boosts production 30%

This was the outstanding result when a metalworking company studied and evaluated production of piston pin bolt heads with a Ryerson representative. The Ryerson specialist recommended Rycut® 40—the world's fastest machining alloy steel in its carbon range.



Other cost-cutting results:

In addition to boosting production, this risk-proof Ryerson alloy reduced rejects 15% . . . increased tool life 50% . . . and gave parts a better finish. Ryerson value analysis of materials and methods may help solve some tough problems for you. Contact your nearby Ryerson plant for details.

RYERSON CERTIFIED QUALITY

RYERSON STEEL®

Member of the INLAND® Steel Family

STEEL • ALUMINUM • PLASTICS • METALWORKING MACHINERY

NATION'S MOST COMPLETE SERVICE CENTERS IN PRINCIPAL CITIES COAST TO COAST

For More Information Write No. 203 on Inquiry Card—Page 32

Automation Puts Pressure on Supply

Automation is going to create plenty of problems that management hasn't foreseen. The result may be that materials activities will finally get the recognition and responsibility they deserve.

By Dean Ammer

MILLIONS OF words have been written about the effect of automation upon the labor force—whether it will cause unemployment or create a bonanza of new highly-skilled, better-paid jobs. But study of the impact of automation upon materials management has been almost completely neglected. This is true even though most companies spend twice as much on materials as they do on labor.

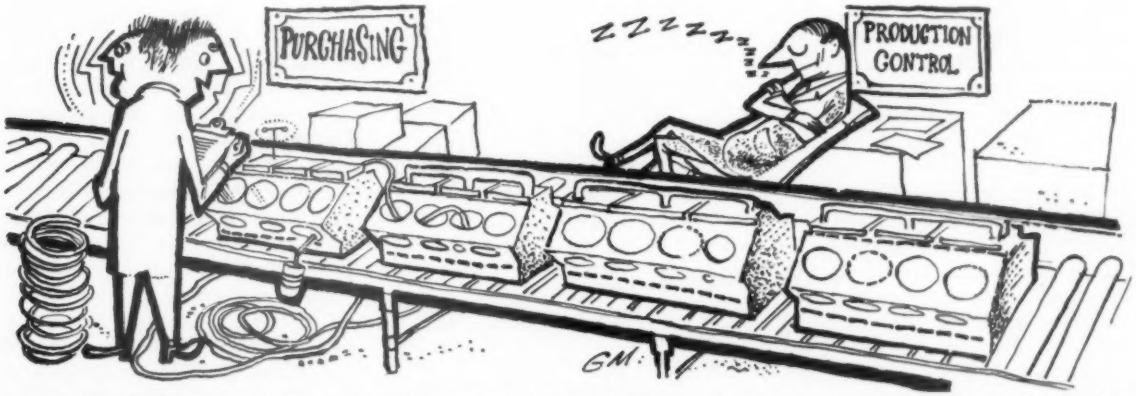
It is entirely possible that many company managements are going to wake up and discover that automation has created serious materials management problems while its effects on the labor force were greatly exaggerated.

Automation will affect the materials organization in two ways. First, automated production equipment will intensify supply problems and may well force an entirely different materials organizational approach to cope with them. Second, automated office equipment will substantially change the operating procedures of the activities concerned with materials. This in turn, may force management to take a fresh look at its materials organization.

This is the fifth article in a special series on materials management. The other articles appeared in the January 5, February 2, February 16 and March 16 issue of PURCHASING *Magazine.*

Economics of Automation

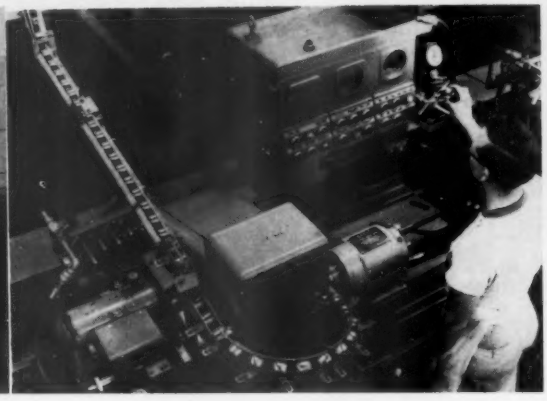
Some day, it is conceivable that engineers will build a plant that requires no production workers. In this totally automated plant, everything will be done by machine. This doesn't mean that it



Automation eliminates need for control of in-process inventory. But it puts even greater stress on the supply function.

How Automation Sparks Materials Revolution

In the Office



In the Factory

Automation is going to spark a new approach to materials management. Automation in the office is going to drastically change materials techniques. Automation in the factory is going to create supply problems that will force the typical materials manager to use every advanced technique to prevent the costly shutdowns that are an ever-present threat to the automated plant.

As plants and offices become more automated, management is eventually going to wake up and discover that their Model T era materials organization (that's about the time purchasing first gained general recognition as a separate and independent function) is obsolete. A new approach is needed; one that treats material management as an integrated concept embracing purchasing, and all other materials functions.

This integrated approach is only logical when you consider how electronic computers are programmed. One program is used for the entire materials cycle; one materials manager should be responsible for the human decision-making for this entire cycle. Management can hardly afford to do otherwise because of the effect of the automated factory: it makes shut downs from lack of materials more costly than before. It requires that materials management be regarded as an integrated process with complete responsibility for getting material to the automated machines and transporting it from them to warehouse or customer.

will cost nothing to operate this dream plant. Even though there is no direct labor cost, all other costs will still exist—indirect labor, purchased materials, administrative, interest and return on investment, etc. In fact, some costs will be much higher than before. More complex equipment costs more to maintain. It also requires a greater initial investment. This means depreciation and return on investment charges that are much higher than before.

No one has built a workerless plant as yet. But some of the highly automated plants in the electrical equipment, electronics, and auto industries provide clues as to what happens to costs when processes are automated. The following example is representative:

Costs Before Automation	
Material	$1.00
Labor	.38
Overhead	.57
Manufacturing Cost	$1.95
Sales & Administrative Cost	.08
Profit (to yield 20% return on investment)	.17
Selling Price	$2.20

Cost After Automation	
Material	$1.02
Labor	.04
Overhead	.55
Manufacturing Cost	$1.64
Sales & Adm. Cost	.08
Profit (to yield 30% return on investment)	.38
Selling Price	$2.10

As is to be expected, automation drastically reduces labor costs and also reduces total costs. Not so obvious are these by-products of automation:

(1) Overhead is practically unchanged. Although there will be less indirect labor in the automated plant, what labor there is will be more highly skilled and higher priced. The greater capital investment in automated equipment will mean bigger depreciation charges and probably higher general maintenance and operating costs. It is also important to note that the composition of the overhead changes. Fixed charges (depreciation, etc.) increase while variable charges (mostly indirect labor) decrease. This makes costs more rigid than before.

(2) Profit requirements are higher. Automation requires a bigger investment. Naturally, this means profits must be higher to give the same return on investment that you would get with a non-automated operation. In addition, the percentage of return on investment should be even greater than with non-automated facilities (even though competition may prevent it.) The reason: risks are greater with automation. In a completely unautomated plant, if management makes a product that doesn't sell, it can simply lay off its workers and minimize its losses. With automation, a company is likely to be stuck with an enormous investment in equipment that isn't good for much of anything but making a product that no one will buy.

(3) Purchase costs may go up. When there are slight deviations in quality of parts and materials in a non-automated plant, workers are often able to use the materials anyway by making minor adjustments. In a fully automated plant this might not be true. Off-standard materials may cause costly downtime. Automation tends to make processes inflexible. To get the desired quality, purchasing may have to pay higher prices.

Materials Management Vital

All of these side effects of automation help make materials management both more difficult and more important. Automation puts tremendous pressure on supply process. In the non-automated plant if a supplier fails to deliver materials of satisfactory quality, the plant is shut down and the workers are sent home. This is costly enough. But, in the fully automated plant, the costs of shutting down are many times greater. Since there are fewer workers, less can be saved by sending employees home without pay if there's a shutdown. Substituted for the workers is a tremendous investment in equipment which goes right on depreciating whether it's being used or not. Consequently, **a plant shutdown due to failure of supply in the automated plant is far more expensive than it is in the non-automated plant.**

Since profit requirements are higher in the automated plant, an additional burden is placed upon the supply function. **The loss of profits due to supply failure in an automated plant is much greater than it is in a non-automated plant.**

When an expensive piece of automated equipment jams up because of defective purchased material, there are heavy repair costs and sometimes the one breakdown causes an entire plant to be shut down. On the other hand, in a non-automated plant, if a workman uses faulty material, he may make a defective product. But he won't tie up an entire plant. **In the automated plant, there is tremendous pressure on the supply function to get materials of more uniform quality at minimum cost.**

New Organization Needed

Many management experts wonder if existing materials organizations will be able to cope with the intense pressures upon supply that automation will bring. They think a whole new approach may be needed. The current approach to materials management may well become as obsolete as the buggy whip they assert. Traditionally, in the non-automated shop, the foreman (or a production control clerk) determines the need for material either by checking his records or by making a physical count. He then (and there are a myriad of systems for doing this) compares actual inventories and materials already on order with estimated requirements based upon over-all production schedules. The end product of this analysis is a purchase requisition for the balance of the materials required.

The P. A. is often regarded as a junior partner by sales, engineering, and finance even when he has, theoretically, equal rank in the organization.

In a completely automated plant, this involved process is completely pointless. In-process inventories are rarely a problem; they're handled by the automated equipment and their control is part of the process. On the other hand, for reasons we have already demonstrated, raw material (including purchased components) is much more of a problem in the automated plant. No longer can key decisions on inventory management be made by clerks in production control working independently of purchasing. Instead they must be carefully correlated with information on buying decisions.

Supply failures become prohibitively costly. A buyer in an automated plant must be extremely flexible. He must be able to make rapid adjustments in on-order balances and inventories to suit changing conditions. He can't afford to wait for production control or material to finish its paperwork before making a decision. He must have the necessary information right at his fingertips. And, he must have the authority to do an integrated materials management job.

In the automated plant, the functional lines of purchasing and production control inherited from the job shop will eventually disappear. Purchasing and production control will eventually merge. Some of production control's functions—scheduling of production and movement of in-process materials and control of in-process inventories—will simply disappear with automation. Other functions—namely, those having to do with the control of purchased materials and components—will be handled by purchasing. In most cases, it will be desirable to make each buyer a miniature materials manager. He will not only buy but will also manage his own inventories and,

Management Still Doesn't "Buy" Materials Management Concept

You would have to look long and hard to find a purchasing executive who is completely opposed to the materials management concept. Purchasing people believe profits and efficiency go up when all related materials activities are combined in a single materials department. Still there's no mass movement toward the materials management concept in American industry by any means. Even in those industries which most widely accept the materials management concept—electronics and aircraft—the materials manager or director of material is only rarely a member of top management. Far more often, he's strictly middle management, reporting to the top man in manufacturing.

Purchasing people in many companies have attempted to convince their managements that an integrated approach to materials management will help boost profits. Some have been successful. Many, however, have had difficulty convincing sales and engineering-minded managements of their point of view.

"The rub," says one P. A., "is that when I try to sell management on a materials management approach, they just smile and figure I'm pushing for a bigger job." They don't even get around to giving any thought to the benefits of materials management itself."

"If we could only get engineering or manufacturing people to go to management and sing the praises of materials management, instead of just purchasing people, it would help a lot," says another P. A. wistfully. "If purchasing blows its own horn, it's immediately suspect; but if someone else blows it for us, management will eventually be sold."

That P. A. may eventually get his wish. Engineering, finance and manufacturing people aren't going to go out of their way to praise purchasing any more then they have before. But it seems likely that their attitude toward materials management will slowly change. The force that will cause the change is technology—automation in both the plant and the office.

in effect, write his own requisitions.

No More Drudgery

Will this change make clerks cut of buyers? Will they get so immersed in the details of material control that they won't have enough time for the creative, decision-making phases of their jobs? Not in the least. Practically all the routine, clerical drudgery that was formerly a part of both purchasing and production control will be taken over by computers and other office equipment. For automation in the office is keeping up with automation in the plant. And it is every bit as potent a force behind the trend toward an integrated approach to materials management.

No crystal ball gazing is needed to see the effect of computers upon materials management. We already have dozens of them operating in industry today. Unfortunately, management has yet to fully understand their impact upon the materials organization.

This is surprising when one considers that problems in the operation and programming of the computers all help point to the need for an integrated approach to materials management. **Like automation in the factory, automation in the office will cause many existing functional lines to disappear.**

Computers are programmed the same way materials should be managed: on an integrated basis. The typical computer set-up works something like this:

Master inventory records of each item are kept on magnetic tape and stored in the computer. Stock receipts, withdrawals, purchase order data, etc., are then "posted" to the computer daily. The computer then compares all this data and automatically issues requisitions or requests for follow up as required. It can also be programmed to directly type out purchase orders. With special programming, it can compute economic order quantities and also provide any other data and reports needed for materials management. In short, **the computer manages materials on an integrated basis.** A production control computer doesn't pass a requisition to a purchasing computer which in turn fills it out and passes it back to the production control computer. On the contrary, one computer programming is used for the entire materials management from creation of the need for the material to its final use in production.

It's only reasonable that the people who make the decisions that guide the computer should be organized on the same basis. If management doesn't do so, it will be permitting a practice every bit as archaic and wasteful as that of having a fireman standing by to shovel coal on a Diesel locomotive that's powered with fuel oil.

One, integrated materials department should be directly responsible for the materials programming in the computer. This department needn't operate the computer itself; that's a highly specialized service function. But it should be responsible for making all of the decisions for which the materials data from the computer is used. This means that the existing purchasing, production control, receiving, shipping, traffic, materials handling, and possibly receiving inspection departments must be combined into an integrated materials department. Since the computer will be doing practically all of the drudgery, this combined department may have less than half as much manpower as the old departments had in the pre-computer days. But it will be managing materials as they've never been managed before.

The Computer Does Everything But Buy

By Charles G. Schaefer

ELECTRONIC data processing is saving Sperry Gyroscope Co. $100,000 a year in purchase orders alone and it has shown its value in many other ways as well. Sperry's Univac system automatically manages an inventory of 12,000 items. It decides when to reorder parts, how many to buy, and automatically prints the necessary purchase requisitions complete with receiving and routing instructions. It examines the company's position on each requisition, weighing the stock on hand against the known usage rate and procurement lead time. If the facts warrant, it automatically prints "Rush" on the papers.

What's more, it prints a weekly catalog of standard parts and hardware, itemizing costs, stocks on hand and on order. It also prints reports on current status of parts on order, inventory verification, overdue purchase orders, and inventory movement through vouchers for the monthly accounting journal.

ABC Analysis

First step in inaugurating the new system was an analysis of our inventory. Like most other manufacturing companies, Sperry's inventory consists of many low unit value parts which account for a low percentage of total annual expenditure. To be specific, we found that 65% of 25,000 active parts were valued at a dollar apiece or less and amounted to only 15% of our total expenditure for all parts.

Because of this pattern of inventory distribution, we adopted the familiar A-B-C method of inventory classification. We classified inventory into three categories according to the differing degrees of control required, as follows:

A—High dollar value items; critical, long-lead-time items requiring tight control based on firm requirements, detailed scheduling and close follow-up.

B—Relatively inexpensive items having moderate usage and normally requiring a lesser degree of control than "A" items.

C—Low value items of general use, requiring minimum control.

We decided to concentrate on simplifying control of the C-type items. Considering their minor contribution to our inventory cost, they required a disproportionate share of control time.

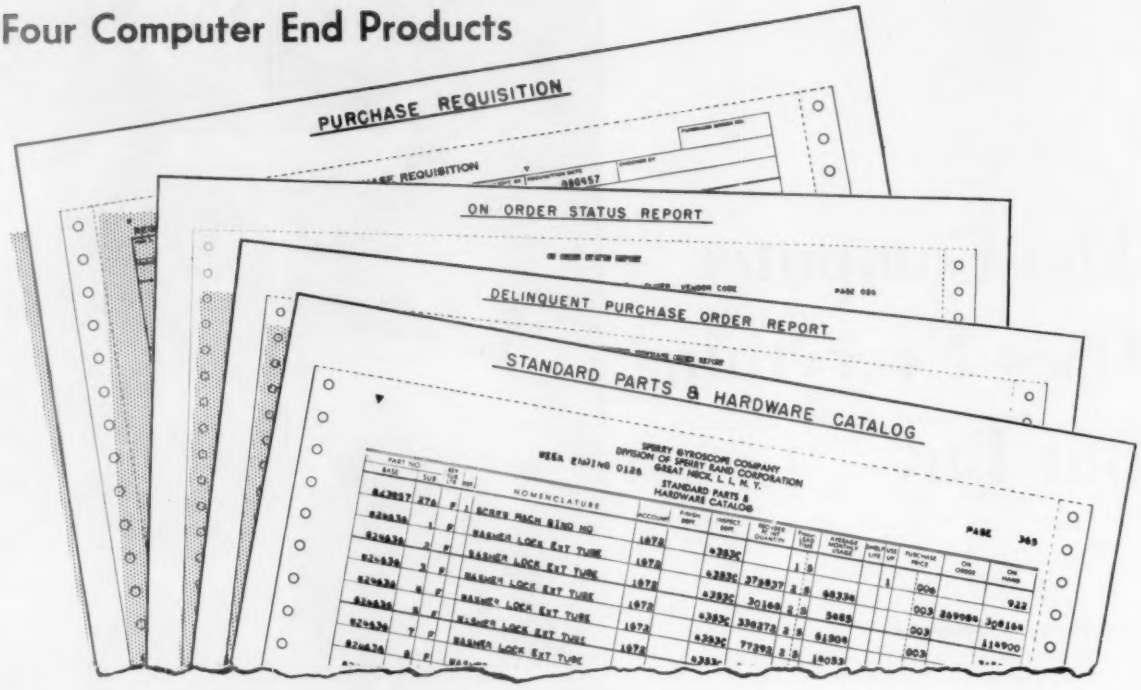
Fortunately, two entire Sperry finished parts inventory accounts —standard parts and standard hardware—fell into the C category. Together they comprised about 6000 parts, and we had monthly records going back several years showing actual inventory investment cost and actual ordering experience, parts usage and stock status. We felt a data handling system could be fully developed, tested and put into operation on these parts and then gradually expanded to cover other parts in the C category.

It's necessary to give the computer some rules and formulas to work by. We had already developed economic order quantity formulas for min-max parts (those used in more than one saleable product and having a

---

Mr. Schaefer is a business systems engineer for the Sperry Gyroscope Co. a division of Sperry-Rand Corp.,

Four Computer End Products


PURCHASE REQUISITION
ON ORDER STATUS REPORT
DELINQUENT PURCHASE ORDER REPORT
STANDARD PARTS & HARDWARE CATALOG
SPERRY GYROSCOPE COMPANY
DIVISION OF SPERRY RAND CORPORATION
GREAT NECK, L. I., N. Y.
STANDARD PARTS & HARDWARE CATALOG

The computer can be programmed to produce almost any sort of report or document. At Sperry it produces purchase requisitions, on order status reports, delinquent purchase order reports and even produces a standard parts catalog.

forecast potential) and were reviewing other classes of inventory items for possible EOQ application.

Dry Run

When we tried EOQ formulas for control of min-max items, we first set up a theoretical, or "would have happened" inventory control system. It was based on comparison of use of the EOQ formula and actual historical usage with the same safety stock allowance used under the actual system. Then we compared our theoretical results with actual or "did happen" inventory. The results were amazing. The theoretical system showed a potential inventory cost investment reduction of 50%.

This was too good to be true. So we looked for offsetting disadvantages, such as an increase in the annual number of procurement orders. But again the theoretical system came out ahead. In fact, the indicated percentage reduction in the number of orders was even greater than that in investment cost, and offered a greater potential dollar saving.

Next, we wondered, would our theoretical system with its lower inventories, give us the same protection against stockouts as the system we were actually using? We asked the production people for a list of the parts they knew to be most troublesome. The new system proved to give more than adequate protection against stockouts.

So there was no question that a scientific control system based on EOQ formulas would save us much money and give us needed protection against stockouts. There was just one problem with the system; it was costly to operate. But suppose we were to "automate" it, what would be our operating costs of controlling the system, compared with the existing manual system? Here again results of the analysis were favorable. For the approximately 6000 items in our original standard parts and hardware categories, the new system required one clerk and seven hours of computer time a month. Net reduction in operating costs: $10,000 a year. Savings would naturally increase as the inventory controlled by the system was expanded to include all of the pertinent C category parts.

Actual Results

Actual experience with the system during the first six months of operation showed that, as had been expected, a considerable number of orders had to be placed at first to bring all the low stock items in line with the safety stock and reorder specifications of the new system. As a result of this opening surge, the inventory was over-balanced at first. Many of the remaining parts were already stocked in excess of the new system's maximum limits, and it took time to work off this excess.

After this initial surge, however, the system worked pretty much as predicted. The system has been expanded to control almost 12,000 items and is still growing rapidly. Disbursements from stock have exceeded re-

ceipts every week since the first block of orders, and inventory investment is going down steadily.

The reduction in number of purchases per part per year—over 50%—already represents a saving of nearly $100,000 a year. This saving, plus many other tangible benefits, has prompted us to do additional research into scientific methods for controlling the other, more costly items in our finished parts inventory.

How It Works

So much for the background. How does the system actually work? What do we feed into it, and what comes out?

The heart of the system is two basic files on magnetic tape—a Master Parts File and a Control File.

The Master Parts File contains a 30-word item (360 digits of data) for each part controlled under the system including the following:

1. Part number.
2. Drawing revision sub-letter.
3. Part nomenclature.
4. Control account number and product.
5. Stockroom department number.
6. Incoming inspection department number.
7. Finish department number (if any).
8. Date of last physical check of "on hand" quantity.
9. On hand quantity.
10. On order quantity.
11. Reorder point quantity.
12. Safety stock quantity.
13. Standard cost.
14. Latest purchase cost.
15. Shelf life limit (if any).
16. Procurement lead time.
17. Current month usage (cumulative).
18. Monthly usage for each of the last 12 months.
19. Annual usage.
20. Average monthly usage.
21. "No-usage" counter.
22. Other incidental data, such as "use up code", number of drawings to be forwarded with purchase requisition, and reference code to denote part substitution.

The Control File is a record of every outstanding purchase requisition, purchase order, and rework against a part in the system. It also contains all closed-out purchase orders (for availability in case of latent defect rejections or other such occurrences). The information in the file depends on the type of document.

Input Data

Input into the system is of two kinds: "Item change data" and "feed-back data". The purpose of item change data, which is required to insure the accuracy and completeness of the master parts file, is to add or delete parts or to change any or all segments of the master file information pertaining to any part in the system. Forty-one possible data changes can be made to each part in the system, each identified by an individual process code and provided with specific computer instructions.

Feed-back data, on the other hand, consists of all transactions that affect inventory status, including data generated to add or withdraw parts from stock, to record physical counts and to effect adjustments. Feedback data that affects on-hand status is processed against the master parts file; data affecting on-order status are processed against both the master parts file and the control file.

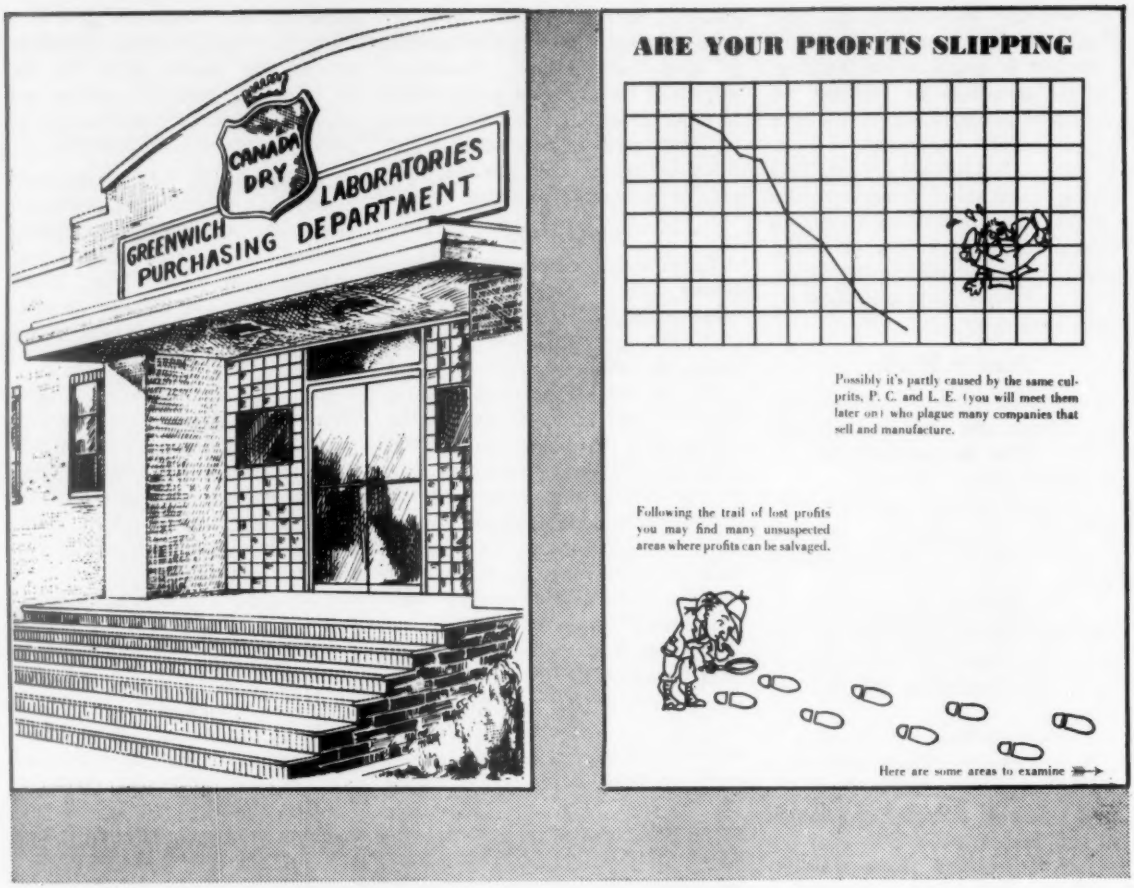
All inventory data is processed weekly with certain modifications (we call them control validating adjustments) introduced into end-of-the-month processing. There are two types of weekly processing: file maintenance and inventory transaction processing.

In file maintenance, item-change and purchase-order data is processed. The files are updated to allow for new, changed or deleted parts and to record the latest unit prices, vendors' promised delivery dates and other pertinent information.

Inventory transaction processing involves the posting of disbursement and receipts data, the adjustment of stock balances, the analysis of stock status, the issuance of purchase requisitions where necessary, and the auto-

(*Please turn to page* 141)

Univac operators monitor computer operations at the Univac console. Printer in the foreground is the supervisory control printer which provides an automatic check on tapes being run through the machine.


CANADA DRY
GREENWICH PURCHASING DEPARTMENT LABORATORIES
ARE YOUR PROFITS SLIPPING
Possibly it's partly caused by the same culprits, P. C. and L. E. (you will meet them later on) who plague many companies that sell and manufacture.
Following the trail of lost profits you may find many unsuspected areas where profits can be salvaged.
Here are some areas to examine

Purchasing Profit Message

Division managers are too busy to listen to the P.A.'s troubles. But there's a way to let them know how they can help purchasing increase its efficiency and boost profits.

SOFT SELL is helping to put across hard facts about purchasing for Canada Dry Corporation.

The beverage producer's purchasing department has developed a Profits Booklet that has been distributed to 20 U.S. divisions. Aim is to obtain more accurate and current sales estimates, so that purchasing can keep inventories in balance and more efficiently meet production requirements. But there's not a word about purchasing's problems in the booklet. "Field personnel have plenty of their own," says Purchasing Agent J. B. Neil. "So what we've tried to do is capture and create interest, show how better estimating can help people in the field, and avoid crying about our own troubles."

The lively 5½" x 8½" booklet cover features a sketch of Canada Dry's purchasing office in Greenwich, Conn. Mr. Neil's foreword reads:

"This pamphlet is dedicated to those on the firing line who are responsible for providing the lifeblood of our company—namely PROFITS.

"It has been prepared by and is presented with the compliments of the Purchasing Department with the hope that it may assist in understanding an extremely important problem which is constantly in evidence.

"We have tried to make this easy to take and digest by using the lighter vein but there is a real, vital message contained herein.

"We are sure you will recognize some of the main characters in our story. You have seen them prowling around close to home.

"We are trying to help and we hope you will accept our effort in the spirit of mutual interests."

Inside pages of the booklet are reproduced here. Sketches were done by Joan Zelyez, cover and format by C. E. McKelvey, both of Canada Dry.

TOO MUCH INVENTORY

SPACE AND INVESTMENT

	REQUIRES	
	Cubic Feet of Space	Investment of
A car of sugar	3600	$9100.00
A car of 28 oz. Bottles	3600	1800.00
A car of Wood	3600	3175.00
A truck of Caustic Soda	1300	1311.00
A truck of Handipaks	1800	3750.00
340 cases of Orange Concentrate	900	7425.00
275 Bags of Carbonate of Magnesium	900	877.00
70 Drums of Citric Acid	900	4166.00

3600 Cubic feet equals a space approximately 15' x 15' x 15' or that of a good sized room.

INVESTMENTS ! ! !

Remember the hullaballoo last summer on inventories!

DUMPAGE

Plenty of profits can go down the drain.

SURPLUS

No, not surplus dollars, but surplus inventories. You pay the in and out freight; and is freight an item to curl your hair!

Add, the cost of handling, paper work, etc. and you will find it will take a lot of extra case sales to make up the loss in profits.

OBSOLESCENCE

This can really dip into the till. Right now there are several million, yes million, labels due for the ash can.

EXTRA INTERNAL HANDLING

Move it from here to there etc. You know what labor costs $$$$$$. Enough said, eh what.

TOO LITTLE INVENTORY

RUSH SHIPMENTS

Wires, Long Distance Calls, Lost Production Time, Etc., Etc.

Need we say more?

LOST SALES

Perish the thought!

This is getting too depressing. All those lovely profits slipping away. Now let's see who is robbing us of all those juicy profits.

WHO ARE THESE TWO CHARACTERS CARRYING OFF OUR PROFITS . . .

NONE OTHER THAN:

P.C.
POOR COMMUNICATIONS

L.E.
LACK OF EXECUTION

These two work independently or together. Depends often on the job.

Let's see how they operate. Take employee, oh, let's call him Mr. X. He has prepared a sales estimate for the coming 12 months. The very best possible. Yipee, that job's done for another year.

Is it? If POOR COMMUNICATION has his way it is. BUT what happens inventory wise each succeeding month if changing conditions are not COMMUNICATED to the Plant Manager.

If Sales follow the Estimate → No Problem
If Sales are below the Estimate → Maybe Big Problem — TOO MUCH INVENTORY
If Sales are above the Estimate → Maybe Big Problem — TOO LITTLE INVENTORY

Inventories are founded on the Sales Estimate as follows:

Sales Estimate Converted to Raw Materials etc. → 150 R.M. Items, 10 Bottle Types, 3 Wood Types → Converted to → Purchase Orders → Then to → Inventories

Despite good estimating, LACK OF EXECUTION can do damage by:

Not relating Full and Empty Inventories to the Sales Estimate.

Not obtaining the lowest price and freight classification consistent with intelligent procurement practices.

Hope this has been of some help towards

Bigger Profits

Value Buying— The Westinghouse Way

The head of Westinghouse purchasing explains how his company tries to get the most value for every dollar spent; how it makes use of its suppliers' research and development facilities; how it relies on its suppliers for help on product design.

By A. M. Kennedy, Jr.

Westinghouse's A. M. Kennedy: ". . . in these days of tremendous pressures and galloping inflation there is a great temptation to measure value by price alone. This is the greatest occupational hazard in the purchasing profession today."

THE GENERAL objectives of Westinghouse in buying activities is to obtain the maximum value for every dollar we spend. In other words we want to be value buyers and not price buyers. And in these days of tremendous pressures and galloping inflation there is a great temptation to measure value by price alone. This is the greatest occupational hazard in the purchasing profession today. It was expressed very neatly by Ben Franklin many years ago when he said, "It is easy for a man to know the price of everything and the value of nothing."

Now how can we know when we're paying too much? The answer is, of course, to define value in terms of function. Value is maximized when the cost per unit of function is the lowest. This, of course, implies that we must have a very accurate specific definition of the function to be performed by what we buy before we try to measure its value. We try to have in mind constantly some remarks written by John Ruskin a great many years ago. It goes something like this:

"There is hardly anything in the world that some man cannot make a little worse and sell a little cheaper, and the people who consider price only are this man's lawful prey." Well, what are the elements of value then which we are concerned with in spending nearly a billion dollars of our company's money each year? The elements which we consider are four. I cannot state them in the order of their importance because their order of importance varies widely with the different types of materials, components and equipment we buy. The four elements of value are: Quality, consistant availability, net applied cost and technical and development service. Let me say just a few words to each of these elements:

QUALITY

Quality purchasing is a two-horned problem. We must buy materials which meet high quality standards, but we must not indulge in the luxury of paying for unusable quality. In other words, a purchasing department must balance the cost of better-than-necessary quality on one hand against product failure through substandard quality on the other. Between these two extremes there is a large area which purchasing agents must investigate and understand. For this reason the people in purchasing must work closely with people in engineering and manufacturing to determine the most appropriate quality to be purchased.

CONSISTENT AVAILABILITY

Low cost and adequate quality are of little consequence unless the supplier can make his product available at the time when it is needed. This is one important way to reduce the high cost of plant shutdowns. Supplier production must be dynamic enough to keep pace with a company's demand for the product.

A good example of the importance of material availability can be found in the method by which our company buys steel. Our very existence depends on the availability of steel. Therefore, we must buy it from suppliers who can demonstrate that they offer a continuity of supply over the long haul, in tight markets as well as soft.

In order to encourage steel suppliers to count on us as a regular customer we have established a consistent standard of behavior. We pay the producer's firm price even though a temporarily soft market might create the opportunity to shop elsewhere for bargains of several dollars a ton. We do the same thing with suppliers

---

Mr. Kennedy is vice president of purchases and traffic for Westinghouse Electric Corporation, Pittsburgh, Pa. This article is a condensation of a recent speech he made at the 23rd Annual Machine Tool Electrification Forum in Buffalo, N.Y.

of copper and other basic materials. When you obtain long-range assurance of supply, you are buying value.

NET APPLIED COSTS

In most cases buying a product on the basis of price alone is not practical. Ease of application and the cost of assembling materials must also be taken into consideration. Some materials, for example, are more readily used because of superior methods of packaging which tend to prevent corrosion or other spoilage. This is an important factor when applied to new cost. What our company wants to know is what is the lowest unit cost installed in our products rather than just the price of the purchased unit. We must take into account transportation, handling, packaging, machinability, ease of assembly, cash discounts, and payment terms. It means we must consider the application of the part or material. *Installed* unit cost serves as the best index to purchasing economically.

TECHNICAL AND DEVELOPMENT SERVICE

There is available to every company a vast reserve of research, development, and engineering talent. This reserve belongs to the many suppliers who have appropriations for developing and providing new and improved products and ideas. Suppliers normally carry on this work, and it is charged into the products they sell. Since we indirectly pay for the service whether we use it or not, our company tries to make use of it.

We feel it is purchasing's responsibility to isolate those areas where the work of suppliers would be most beneficial to our company, and then to communicate this information to these suppliers so their development efforts will be directed at our problems. The accomplishment of this objective depends upon good communications. That means good communications between our own manufacturing, engineering, and purchasing people and also good communications between our company and the suppliers.

We want our design and manufacturing engineers to think of their own problems and programs in terms of what suppliers could be expected to contribute to their improvement. Think of suppliers in regard to their narrow area of specialization; i.e., the machine tool suppliers are our experts on tooling, the rubber companies as our rubber specialist, the aluminum companies as our aluminum specialist.

Just as our expenditures for research and development provide those salable improvements in product which hopefully gain us not only profits but greater market penetration, so are our suppliers hoping. Whenever we are an important customer, we have a right to expect a portion of the research and development budget to be devoted to our specific problems.

Get Help on Designs

We can't afford to do business with suppliers who are weak on development, except in those very rare cases where there is virtually no opportunity for the improvement of cost or quality. If it is this important to us, then we must make the supplier's development ability a significant factor in the value decision. For instance, I believe that suppliers should be doing more design work for us.

We don't make hardware, or at least we shouldn't, even though we use tremendous quantities of it. Why then should any of our draftsmen ever have to draw a detailed sketch of any standard hardware? Let the supplier do this. He is the specialist. He is a designer who has had the broad experience of many customers' hardware problems. More important yet, he knows how to make it for its precise function, at minimum cost.

I suggest that we should limit our effort to telling him precisely the job to be done. We should tell him what the problem is in terms of the materials to be joined, the operating conditions, the required safety factor, and any other performance requirement which is going to influence the design.

Get More For Your Money

Westinghouse is actively selling the value buying concept to American industry. It is valuable to us as a purchaser because we get more for the dollars we spend. As a manufacturer of equipment that requires considerable research and development, we also want our customers to be value buyers.

Technological developments take many forms and produce many varied results. But they have one thing in common in every industrial enterprise: They cost money—a very great deal of money. Last year, American in-

(*Please turn to page* 168)

Shaking the Atoms Silly . . .

Westinghouse scientists, using a technique known as nuclear magnetic resonance acoustic absorption, vibrate atoms of a crystal 20,000 times a second. This atomic "shaking" reveals the interior structure of crystalline materials.

Research such as this costs money. And as P.A. Andy Kennedy points out in this article, purchasing executives must put a dollar sign on values which they may not be able to measure but which they know save them money. The amount a supplier invests in research is something every P.A. should think about when analyzing supply sources.

Traveling Requisition: The First Step Toward Scientific Purchasing

A small manufacturer in Rockford, Ill. found it was possible to put purchasing on a professional basis by installing a traveling requisition system. The company is now buying better and saving time and money.

By William H. Schnorenberg

ABOUT a year and a half ago, Amerock Corporation made a change in its requisitioning methods that has been paying off handsomely. Basically it consists of a simple traveling requisition and use of visible index filing equipment.

Previously Amerock had been requisitioning items essentially on requirements set up when the firm went into business. Now, with 10,000 items to be purchased, the old system became inadequate.

Under the previous method, when a requisition for materials was received an evaluation of the request was made on the basis of what could be remembered about the past purchasing pattern for the item. Any given purchase could be greatly in excess of the needs of the immediate future or could just as easily fall far below requirements.

It was obvious that purchasing procedures had to be modernized. We made visits to a number of industrial plants in the midwest, before hitting on the Remington-Rand Kardex system as being best suited to our needs.

Mr. Schnorenberg is director of purchases of the Amerock Corporation, Rockford, Ill. He is a past-president of the Rockford, Ill., Purchasing Agents Association.

Standard Procedure

An 8″ x 5″ card, which is kept at the point of materials storage, serves as the actual requisition. Prior to the complete changeover, a pilot installation was made in the chemical stores department. It resulted in an immediate improvement in purchasing and inventory control procedures. This led to a request for the installation of a slightly modified version in the materials control department. Management then agreed to make it a standard procedure.

Full information—part number, description, specifications, price, a record of usage, what the item is used for, etc.—is included on a single card. The system functions on what might be termed a perpetual, automatic basis.

For example, when tool stores issues an item, the reduction in stock is posted to the in-and-out balance record adjacent to the traveling requisition. Then, when a re-order point is reached, the tool crib keeper automatically pulls the appropriate requisition out of its pocket. He fills in the first four columns on the card to note stock on hand, date of the requisition, quantity desired, and the date wanted.

After approval by the foreman, the card is forwarded to the purchasing department. Here the vendor number is inserted. The quantity to be ordered may be changed for special price advantage. Next, a purchase order is typed. The typist posts date, purchase order number, quantity actually ordered, and current price to the requisition card.

The card is then returned to the originating department, where it can be used for subsequent reorders. If the inventory of a requisitioned item is exhausted faster than anticipated, and the normal follow-up point has not been reached, the purchasing department is notified so it can take appropriate special action with the vendor.

Departments in which the traveling requisition system is now in use include the tool room, plant maintenance department, general stores (including chemical stores), stationery stores, first aid, and materials (covering both raw materials and purchased parts).

Different colored cards are used to provide immediate identification of departments. These enable the purchasing department to tell at a glance the source of each requisition, and the class of stock involved—a substantial aid to processing.

Paperwork costs have been considerably reduced. For example, the tool room foreman saves a full-day each week. We now have a completely accurate, detailed history of each item recorded right on the requisition card, and it is no longer necessary for purchasing to resort to guesswork on the past purchasing pattern for each item.

Another advantage of the traveling requisition is that, once it is set up, it virtually takes care of itself. Order writing has been simplified and speeded. When the specifications were written on the requisition cards they were properly abbreviated. This eliminates a lot of time in purchase order typing.

Still another advantage: we can change personnel without difficulty, either in the shop or in the purchasing department, because there is a full record of everything that has happened right on the cards.

The traveling requisition and the in-out balance card are shown here as they appear in the supply room records of the plant maintenance department and other departments of Amerock Corporation.

The stock clerk in the supply room of Amerock Corporation's plant maintenance department consults card file to determine if the reorder point for an item has been reached.

A Buying Guide for Copper Alloys

Metallurgical research has produced a number of new copper alloys that are especially useful. Here is an up-to-date review of the properties and chief uses for these important copper alloys.

By T. E. Veltfort

FOR THE P.A. who is only an occasional buyer of copper alloys, the job of keeping up with the many types of alloys that are available is virtually impossible. And even buyers who specialize in copper alloys find it difficult to remember the properties and characteristics of the various types.

This article is designed as a basic primer to help both the occasional and the large volume copper alloy buyer. Starting with the coppers, **electrolytic tough pitch copper** has long been the standard commercial wrought copper used for wire, rod, plate sheet and strip. This type of copper is most suitable for electrical uses, auto radiators, sheet metal for buildings, large vats, kettles and chemical processing equipment.

Deoxidized copper is particularly suited to uses that require hot-working, annealing, soldering, brazing and welding. Typical applications include pipe and tube for plumbing, gas and oil lines, refrigeration and condenser tubes, pulp and paper lines, brewery and distilling tube, brew kettles, vats and industrial tanks.

Oxygen-Free copper is used widely for electrical and electronic applications. It is also used for impact extrusions and other processes involving severe cold-work. Other applications include metal-to glass seals, and for high conductivity copper in the presence of hot reducing gases.

Low-Zinc Brasses

The low-zinc brasses have excellent cold-working properties. For fabrication by deep-drawing, spinning or rolling, in which cold-working is severe, these alloys offer the advantage of requiring few intermediate anneals.

Cold-work tends to harden and strengthen copper alloys in proportion to the extent of the cold-work. The low-zinc brasses are not adaptable to heat treatment for the purpose of hardening and strengthening.

Originally it was rather simple to classify the copper alloys. Brass was an alloy of copper and zinc. Bronze was an alloy of copper and tin. But modern developments in metallurgy have created important new copper alloys that have caused revision of the original simple designations.

Now brass is defined as any copper alloy with zinc as the principal alloying element. There are alloys, that are brass by definition and some of their characteristics —commercial bronze, 90% for example—and yet they may have the typical bronze color and retain the word bronze in the accepted identification. These alloys are classified as brass today for the functional use of such alloys.

Gilding, 95%, containing 95% copper, the balance zinc, is one of the low-zinc brasses. This alloy is readily spun, drawn, upset and forged. Its color is a rich bronze, yet it makes an excellent base for subsequent finishing and plating. The alloy is widely used for costume jewelry, coins, medals, emblems, plaques and ammunition components.

Commercial bronze, 90%, takes its name from its typical bronze color. This alloy is stronger and harder than copper. It is fabricated by spinning, drawing, upsetting and forging, but does not machine freely. Commercial bronze has good resistance to stress corrosion or season cracking. Typical uses include storefronts, builders' hardware, outdoor light fixtures, weatherstripping and screen cloth, shell bands, forgings, screws and rivets.

Red brass, 85%, is the most widely used of the low-zinc brasses. With a rich golden color, this brass stands severe cold-drawing and can be readily stamped and spun. It is not readily susceptible to hot-working. The alloy is highly resistant to corrosion. Typical uses: plumbing and condenser tube, process piping, builders' hardware, weatherstripping, radiator cores, watch and clock dials, coins and plaques, and fire extinguisher cases.

Low brass, 80% has a light golden color. The alloy is readily drawn, cupped and stamped. It has good general resistance to corrosion and is less subject to corrosion and season cracking than yellow brass. Typical applications include flexible metal hose, metal bellows, watch and clock dials, medallions, and architectural trim.

High-Zinc Brasses

The high-zinc brasses, containing from 30 to 40% zinc, are characterized by comparatively high strength and hardness, and good wear characteristics. Alloys containing more than 37% zinc have good hot-working properties but cannot be cold-worked effectively. Those with less than 37% zinc are readily cold-worked but do not lend themselves to hot-working.

Mr. Veltfort is managing director of the Copper & Brass Research Association in New York.

Yellow brass, characterized by its bright yellow color, is probably the most widely used of the brasses. It contains nominally 65% copper and 35% zinc. With excellent strength and ductility, and capable of taking severe cold-working, the alloy is particularly suited for blanking, stamping, forming and etching. Yellow brass is commonly used for clock, watch and instrument cases, for screw and socket lamp shells, for auto radiator tanks and cores. It is also used for plumbers' brass goods, screws, rivets and builders' hardware.

Cartridge brass, 70%, another of the high-zinc brasses, and used interchangeably, with yellow brass, has excellent strength and ductility. It can be severely cold-worked by deep drawing, spinning, rolling, stamping, flaring and forming. In addition to its use for cartridge and shell cases, this alloy finds wide application in musical instruments, snap fasteners, eyelets, reflectors, lamp fixtures, rivets, etc.

Muntz metal, with a composition of 60% copper and 40% zinc, is widely used for architectural trim, condenser tubes and tube plates, valve stems, brazing rod and plumbing applications. This high-zinc brass alloy has high strength, but its ductility is relatively low. Hot-working properties are excellent, but it does not cold-work readily.

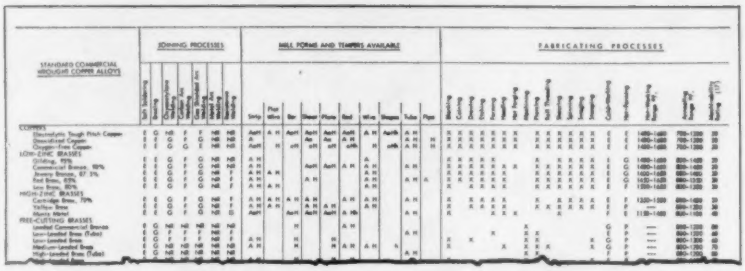
For deep drawing applications in cartridge brass or yellow brass, grain size specification is highly important, especially when the finished product is expected to have a polished surface. This is a means of assuring the best workability and most economical production for the buyer's specific requirements. In general, the higher the annealing temperature, the larger the grain size and the more ductile the metal. On the other hand, annealing temperatures that are very high, especially when coupled with long annealing periods may develop a grain structure so coarse that cold-work results in an undesirable orange peel surface.

Leaded Brasses

Leaded brasses have ½ to 3%

The Versatility of Copper Alloys
Screw machine parts . . .
. . . stampings . . .
. . . specially drawn and formed parts . . .
. . . variety of parts made from phosphor bronze.

Fact Sheet on Copper Alloys



This is a sample of two informative tables on standard commercial wrought copper alloys, copies of which P.A.'s can get from the Copper & Brass Research Association, 420 Lexington Ave., New York. In condensed easy-to-find form, the tables cover just about everything a P.A. might want to know about copper alloys, including the fabricating processes which can be used with each alloy, the mill forms and tempers available, joining processes, physical and mechanical properties and the corrosion resistance ratings of the various alloys.

lead to improve machinability. Adding lead does not substantially affect the characteristics of brass, except for some reduction of ductility and malleability.

The lead does not dissolve in brass in the solid state. It collects in small particles throughout the alloy, which permits machining cuts to remove metal in small chips rather than in a long spiral. This prevents fouling and dulling of the cutting tool, speeding machining, drilling, milling and other cutting operations.

Leaded brasses have rather inferior cold-working properties, particularly in the higher lead contents. Some of those with lead contents on the lower side may be cold-worked effectively and will also have fairly good machinability. Such leaded brasses may be hot-worked, but the metal must be properly supported. At hot-working temperatures, the lead particles are in a molten state and breakage will likely occur in such processes as hot-rolling or piercing.

Machinability ratings of leaded brasses and other copper alloys are related to machinability of free-cutting brass, which has a lead content of 3% and is rated 100. While approximations, these ratings are a guide to proper cutting feeds, speeds and power requirements. Machinability of leaded brasses improves with increasing lead content, up to 3%. After that, mechanical properties of the alloy begin to drop rapidly.

Free-Cutting Brass

Free-cutting brass is the most economical and practicable copper alloy for drilling, forming, knurling, milling, reaming, tapping, threading and turning—at least from the standpoint of tool wear, cutting speeds and feeds, and surface finish. The alloy has a pleasing yellow color and takes a finish that is particularly good for electroplating.

There are advantages in using free-cutting brass for machined components. Temper, size and finishes of free-cutting brass rod are uniform which permits maximum feeds and machining speeds on high-speed automatic equipment. Multiple operations and the use of combination tools are likewise more effective with free-cutting brass than with any other material.

Low-leaded brass is essentially a yellow brass with 0.5% lead. This alloy is good for bending, flanging and other cold-working operations. Typical applications are butts and hinges, watchbacks and similar applications.

High-leaded brass is a yellow brass containing 2 % lead. With excellent machinability, this alloy also has fair cold-working properties. Typical uses are clock parts and hardware. In tube form, the alloy is used widely for screw machine products.

Extra-high-leaded brass, containing 2.5% lead, is ideal for operations such as blanking, machining, piercing, punching and stamping.

Hot Forging Brass

Forging brass was developed specifically to meet requirements for forged parts by many industries. The grain structure of the alloy is uniform and dense which eliminates rough surface finish.

Addition of up to 1% tin to brass alloys improves their corrosion resistance. **Naval brass,** with 60% copper, 39.25% zinc, and 0.75% tin, is one of the most widely used tin brass alloys. It offers high strength and corrosion resistance at comparatively low cost. Typical applications include tube sheets and support plates in heat exchangers and steam condensers, propeller shafting, and marine hardware. Leaded naval brass, which contains 1.75% lead, brings the machinability rating of the alloy up from 30 to 70.

Inhibited admiralty brass contains about 0.05% of either arsenic, antimony or phosphorus, in addition to conventional percentages of copper, zinc and tin. This small but significant alloy addition makes admiralty highly resistant to dezincification, a corrosion phenomenon in which brasses containing less than 85% copper may lose zinc content on prolonged exposure to certain moist or wet conditions.

Inhibited admiralty widely used for condenser, evaporator and heat exchanger tube. It provides satisfactory service in almost any cooling water where pressures, velocities and temperatures are moderate. The alloy is often specified for condenser and heat exchanger plates, and for distillery tubes and ferrules.

Phosphor bronzes are true bronze alloys, since they contain

(*Please turn to page* 176)

Steel spheres like this must be built to contain reactor vessels, steam generators, controls, and heat exchangers of nuclear reactors. This one, constructed for Yankee Atomic Electric Co., is supported by eight steel column casings filled with concrete.

Nuclear Power:

Industrial Use Grows Nearer

Although power derived from the atom isn't economically feasible yet, P.A.'s should start learning about it. For nuclear energy is slated to become one of the most important power sources of tomorrow. Here's a rundown of the plans of private utilities to provide nuclear power, based on a coast-to-coast investigation of new installations.

By A. N. Wecksler

CONTRARY to the belief of the skeptics—who claim that nuclear power will not be economic in this country for many years—many American companies feel that power from the atom at a competitive price is only five to 10 years away.

This optimism stems from two concepts:

(1) Power generation from nuclear reactors is in its primitive stages. There is certain to be a declining curve in costs as the technology is developed.

(2) The cost of generating power from fossil fuels will increase, making the atom more attractive as a power source.

Building Plants

The private power companies are making a determined fight to develop nuclear power, even though the immediate prospects are for higher costs than power derived from conventional fuels. They are building developmental nuclear power plants from coast to coast as an investment in the future.

The private companies learned their lesson about developing new sources of power many years ago at Muscle Shoals. When this site was urged by some for hydro power development, they scoffed and shied away. As a result, the government moved in and developed the TVA complex, blazing the way for public power development of many choice hydro power sites in the country.

Even though nuclear power is more expensive now than conventional power, the private companies are staking their claims in this area. On the other hand, public power advocates are putting pressure on Congress to have the government step into nuclear power plant development, in order to hasten progress. They want more prototype plants built by Federal agencies.

All of the private companies building nuclear power plants are confident that they can bring power costs into competitive range with fossil fuels in the near future. Their approaches to the problem vary from area to area, but their enthusiasm for practical atom power is universal.

New York Plant

Consolidated Edison of New York, now building an atom power plant at Indian Point, N. Y.,

says it wants no government red tape and interference. It is building a combination nuclear steam generator coupled wth oil superheaters. It plans to produce 163,000 kws from the reactor and 112,000 kws by superheating the steam produced with oil fired heaters.

This plant will operate on a combination of uranium and thorium fuel, using a pressurized water system for the coolant. This system circulates a loop carrying water under pressure through the core of the reactor. The heat is transferred through a heat exchanger to create steam to drive the turbines.

The company will spend $100 million to construct the plant, and estimates that it will produce power at a cost between 13 and 14 mills per kw. The actual cost of the nuclear power will be in the 17 to 18 mill range, but this will be lowered by using the superheaters.

This figure hardly looks competitive when compared to the price of 7½ mills per kw for power from the company's new conventional steam plants. However, Con. Edison officials feel that the atom plant is a good gamble. First they realize that they have to build a plant to get experience with nuclear power. And since this plant is a pioneer venture, they believe that future designs will bring costs down sharply. But they don't think this will be a quick development.

8-10 Mills Per KW

The Yankee Atomic Electric Company is building a pressurized water reactor on the Deerfield River, about two miles from Rowe, Mass. Ten New England companies joined to form Yankee and build the plant at a cost of $57 million. They plan to start it up sometime next year.

Fuel costs in New England are high, with conventional power charges averaging between 8 to 10 mills per kw. The company says that power from the plant they are building will cost between 12 to 14 mills per KW, after they've had the reactor operating about four years. This still doesn't look too attractive, but there is talk of a more efficient "second generation" reactor for the area.

New Englanders point out that their conventional fuel costs have increased sharply in the last 10 years, and that the price they pay for fossil fuels is now well above the national average. They feel that they have no leverage now to lower costs of conventional fuel in their area. With nuclear power, they believe that they can achieve a bargaining position that will at least keep their coal and oil costs in check.

Liquid Sodium Coolant

Detroit Edison Company is building the Enrico Fermi fast breeder reactor at a site about 40 miles from the city of Detroit. The fast breeder is designed to produce more atomic fuel than it consumes, by utilizing nuclear fission. In this type of operation, the split atom releases more neutrons than are needed to keep the process going.

In the Enrico Fermi plant, the surplus neutrons are caught in a "blanket" of uranium, and a reaction takes place that produces plutonium. More plutonium is thus released than the amount of fissionable uranium required to produce it. Although the economic justification for this system still has to be proven, it is considered by many to be an attractive experiment with important implications for the future.

Another unusual feature of the Detroit plant is the use of liquid sodium as a coolant. The sodium is in a sealed system and circulates through the core of the reactor to take off heat.

While the ultimate competitive value of the fast breeder reactor is controversial, the fast breeder concept could very well be the most promising for future power development.

Commonwealth Edison Company of Chicago forecasts that its design for the Dresden Nuclear Power Station will result in competitively-priced power. This station will have a dual cycle boiling water reactor, in which the water is circulated in the core of the reactor and produces steam that is taken off directly to be fed to the turbines.

Commonwealth officials claim that this is the most practical scheme for reactor power. General Electric Co., which is furnishing the nuclear reactor equipment, has sold similar reactors to several foreign governments.

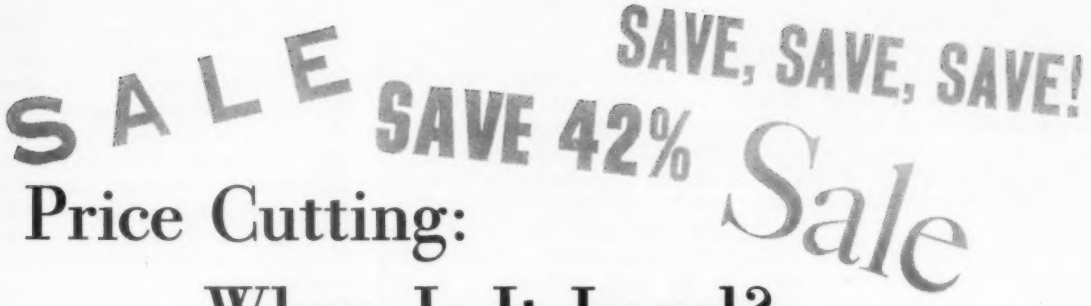
Growing Population

In the San Francisco area, the Pacific Gas & Electric Company looks at power from nuclear energy sources as a distinct need. For the section served by the company is growing rapidly. The company is currently generating 5,219,000 kws of electricity, and in 10 years the demand is expected to double. Officials forecast that as much as 1,000,000 kws of this expansion will come from atomic fuel.

PG&E now operates a 5000 kw

(*Please turn to page* 170)

This 300-ton atomic reactor is the largest one ever built. It will be installed at Commonwealth Edison Company's Dresden nuclear power station.



Price Cutting: When Is It Legal?

Prices are the bread and butter of the P.A.'s job. He should know how the law determines whether price cuts are legal or illegal. Here are some recent court decisions—including interpretations of the Robinson-Patman Act—which help clarify this problem.

By Albert Woodruff Gray

ON JANUARY 27, 1958, the Supreme Court of the United States, absolved the Standard Oil Company of the charge of violating the federal statute against price cutting and discrimination. In its decision the Court said:

"Standard's use here of two prices, the lower of which could be obtained only under the spur of threats to switch to pirating competitors, is a competitive deterrent far short of the discriminatory pricing" in instances previously before that court, "and one which we believe within the sanction of the Robinson-Patman Act."

With this conclusion ended a seventeen year old controversy in which the Federal Trade Commission had charged this company with discrimination by pricing its product to four customers in the Detroit, Mich. area at one and a half cent reduction from the tank car price charged elsewhere. Attempts had been made by competitors to lure these four customers from Standard Oil by offering lower prices. The competitors had been successful in leading three other customers away from Standard Oil.

How the Law Reads

In part the statute here charged to have been violated is this:

"It shall be unlawful for any person engaged in commerce, in the course of such commerce to discriminate in price between different purchasers of like grade and quality, where the effect of such discrimination may be substantially to lessen competition or tend to create a monopoly."

That prohibition is supplemented with the further provision that:

"Nothing contained in this section shall prevent a seller showing that his lower price was made in good faith to meet an equally low price of a competitor."

This recent Supreme Court decision emphasizes a feature of price cutting that was also stressed in the decision of this case by the lower court, affirmed on this appeal, that highlights the distinction made between legal and illegal price cutting.

Pricing Systems

Of the claim of the Federal Trade Commission that this statute had been violated by the Standard Oil, the Supreme Court said:

"Both parties acknowledge that discrimination pursuant to a price system would preclude a finding of 'good faith.' The sole question then, is one of fact. Were Standard's reduced prices to four 'jobber' buyers made pursuant to a pricing system rather than to meet individual competitive situations?"

By the lower court it had been said of the price cutting feature of this controversy:

"The sole contention of the Commission which has any semblance of merit is that the Standard Oil adhered to a pricing system in reducing its prices to the four jobbers and that as a result the 'good faith' defense cannot prevail.

"Apropos to this contention the Commission found that with one exception all of the discriminations in price involved in this proceeding were made pursuant to the company's established method of pricing. They were not the result of departures from a nondiscriminatory price scale which were made to meet lower prices of competitors but represented only the continued application of the pricing standard adopted by the company and followed by it since long before 1936."

Legal Price Cutting

Then emphasizing the distinction between price discrimination or cutting in instances of this character that was done under a pricing system and price cutting, as in this instance, the court added:

"We think that a seller must be permitted in the exercise of a sound judgment, to determine when and under what circumstances it will reduce its price in

order to meet that of a competitor. The law did not require this seller to reduce prices in any instance, it only authorized it to do so under the limitation imposed. This seller had the same right to reduce its price in order to retain a customer as it did to refuse to reduce the risk of losing a customer

"The 'good faith' defense would be meaningless if the seller was required as the Commission appears to indicate, to reduce its price alike to all customers regardless of the quantity in which they buy, the facilities for handling the product and their ability to pay"

Illegal Pricing

In its contrast of the price allowance in this recent case with the latest of those decisions in which the United States Supreme Court held the price reductions to be in violation of the statute, the court referred to its own conclusion made only a few months ago in an action of this character against the National Lead Company That company, according to the Federal Trade Commission, was conducting a planned common course of action, agreement or conspiracy to sell at prices determined under a zone delivered price system, resulting in identical prices at the points of sale, thus preventing purchasers from finding any advantage in dealing with one seller as against another.

Of the circumstances involved in that instance, the Supreme Court made this comment:

"It is our conclusion that the order (of the Federal Trade Commission) was not intended to and does not prohibit or interfere with independent delivery zone pricing in itself. Nor does it prohibit the practice of the absorption of actual freight as such in order to foster competition. Furthermore, as we have said, there is read into the order the provision of the statute as to the right of a seller in good faith to meet the lower price of a competitor.

"This is not to say that a seller may plead this section in defense of the use of an entire pricing system. The section is designed to protect competitors in individual transactions."

Several years before, another case of this character was decided by that court in which the Federal Trade Commission had charged the Cement Institute with violating this same statute against price discrimination. The court also referred to that decision as a further authority in its interpretation of the application of the statute to these two types of price cutting.

Individual Competition

Of the distinction between individual instances of price cutting and the employment of a sales system to that end, the court said in this decision:

"The statute permits a single company to sell one customer at a lower price than it sells to another if the price is 'made in good faith to meet an equally low price of a competitor.' But this does not mean that the statute permits the seller to use a sales system which constantly results in his getting more money for like goods from some customers than he does from others. The act thus places emphasis on individual competitive situations rather than upon a general system of competition."

The third decision which the court followed as authority in distinguishing this discrimination of the Standard Oil Company in its sales in the Detroit area to these four jobbers from instances in which discriminatory price cutting was a violation of the statute, occurred only a few months before that in the proceedings against the Cement Institute.

Good Faith

There the same type of basing point pricing system had been adopted by a manufacturer of corn syrup. In distinguishing the violation in this instance from the price discrimination sanctioned by the statute, the court asserted:

"The statutory test is whether these manufacturers, by their basing point system adopted a lower price in good faith to meet an equally low price of a competitor.

"This test presupposes that the person charged with violating the act would by his normal nondiscriminatory pricing methods, have reached a price so high that he could reduce it in order to meet the competitor's equally low price. On the contrary these manufacturers have used their pricing system to adopt the delivery prices of their Chicago competitors by charging their own customers upon shipments from Decatur the Chicago base price plus their competitors' costs of delivery from Chicago.

"Even though these manufacturers at many delivery points enjoyed freight advantages over their competitors, they did not avail themselves of the opportunity to charge lower delivered prices. Instead they maintained their own prices at the level of their competitors high prices, based upon the competitors' high-

WHAT'S THIS FREIGHT CHARGE FOR ? YOUR PLANT IS RIGHT NEXT TO OURS
IT DOESN'T MAKE ANY DIFFERENCE—WE HAD TO SHIP THE STUFF BY PHANTOM FREIGHT
PHANTOM FREIGHT

Many manufacturers maintain their own prices at the same high level as their competitors by including phantom freight in their delivered prices.

er costs of delivery, by including phantom freight in their own delivered prices."

Then of the method that would have come within the sanction of this statute, the court added:

"These manufacturers have never attempted to establish their own nondiscriminatory price system and then reduced their price when necessary to meet competition. Instead they have slavishly followed in the first instance a pricing policy which in their case resulted in systematic discriminations, by charging their customers upon shipments from Decatur, the Chicago base price plus their competitors' actual costs of delivery from Chicago. Hence it cannot be said that these price discriminations have resulted in 'lower' prices to meet equally low prices of a competitor."

When this charge of illegal price cutting came for review for the first time by the United States Court of Appeals, the statements made in that decision compared with those by the United States Supreme Court, which reversed this decision of the lower court, display another feature of the distinction now established between illegal price cutting and price curting allowed by this statute in legitimate business competition.

Of the one and one-half cent per gallon price reduction allowed these Detroit jobbers on corn syrup, the lower court had said:

"There is substantial evidence that these companies' favorite wholesalers were in a position to do and did do injury to competition. Where as here the discrimination between purchasers who are in competition which is alleged and proved to be injured, is among the retail customers of the favored purchasers and other retailers, the fact that the seller's discriminatory price was made to meet his own competition, is not controlling. The discrimination continued here and its effect was direct and harmful to competition and was properly condemned by the Commission's order, nothwithstanding the company's discrimination in price was made in good faith to meet competition of its own."

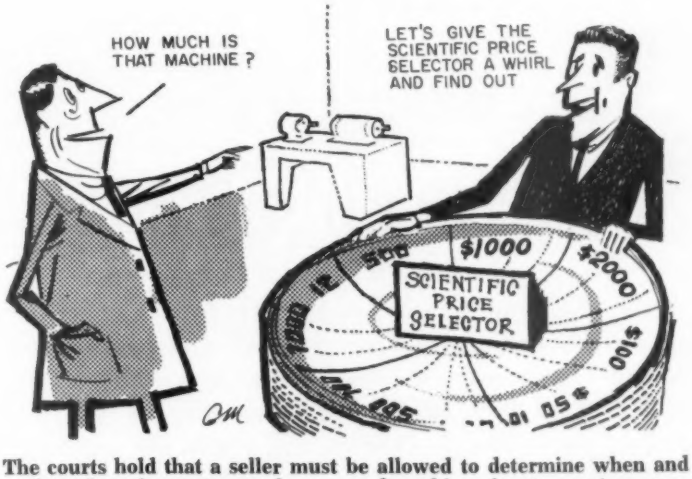
This decision of the Federal Court of Appeals was reversed two years later by the United States Supreme Court with a clear and emphatic statement not only of the interpretation of this anti-monopoly law against price cutting but a definite outline of the extent of these prohibitions against price cutting and discrimination of this character.

Essential Features

"It is enough to say that Congress did not seek by the Robinson-Patman Act either to abolish competition or to curtail it so radically that a seller would have no substantial right of self defense against a price raid by a competitor. For example, if a large customer requests his seller to meet a temptingly low price offered to him by one of the seller's competitors, the seller may well find it essential, as a matter of business survival, to meet that price rather than to lose the customer.

"It might be that this customer is the seller's only available market for the major portion of the seller's product and that the loss of this customer would result in forcing a much higher unit cost and higher sales price upon the seller's other customers. There is nothing to show a congressional purpose, in such a situation, to compel a seller to choose only between ruinously cutting its prices to all its customers to match the price offered to one and then ruinously raising its prices to its remaining customers to cover increased unit costs.

"There is, on the other hand, plain language and established practice which permits a seller, through this statutory provision, to retain a customer by realistically meeting in good faith the price offered to that customer without necessarily changing the seller's price to its other customers."


HOW MUCH IS THAT MACHINE ?
LET'S GIVE THE SCIENTIFIC PRICE SELECTOR A WHIRL AND FIND OUT
$1000
$2000
SCIENTIFIC PRICE SELECTOR

The courts hold that a seller must be allowed to determine when and under what circumstances he can reduce his price to meet a competitor's price.

REFERENCES

15 U.S.C.A., Sec. 13
Federal Trade Commission v. Standard Oil Co., C.C.H., 1958 Trade Cases, Sec. 68,917. U. S. Supreme Court, January 27, 1958
Standard Oil Co. v. Federal Trade Commission, 233 Fed. 2d 649, May 3, 1956
Federal Trade Commission v. National Lead Co., 352 U.S. 419, February 25, 1957
Federal Trade Commission v. Cement Institute, 333 U.S. 683, April 26, 1948
Federal Trade Commission v. Staley Mfg. Co., 324 U.S. 746, April 23, 1945
Standard Oil Co. v. Federal Trade Commission, 173 Fed. 2d 210, March 11, 1949
Standard Oil Co. v. Federal Trade Commission, 340 U.S. 231, January 8, 1951

Forms Forum

This article is one of a series illustrating and explaining the use of various purchasing department forms. All forms that will be described in this series have been selected from representative purchasing organizations around the country. Watch for Forms Forum and see how your own forms measure up.

PURCHASE ORDER
CHERRY BURRELL
2400 SIXTH STREET, S. W.
CEDAR RAPIDS, IOWA
PURCHASE ORDER NO.
CR
DAIRY • FOOD • FARM • BEVERAGE • BREWING • CHEMICAL • EQUIPMENT AND SUPPLIES
ITEMS
USED ON
PLEASE INVOICE IN DUPLICATE
ACCOUNT – DELIVERY INSTRUCTIONS
SUBJECT TO ALL CONDITIONS STATED ON THE BACK OF THIS ORDER
CHERRY-BURRELL
① First four copies of P.O. are perforated

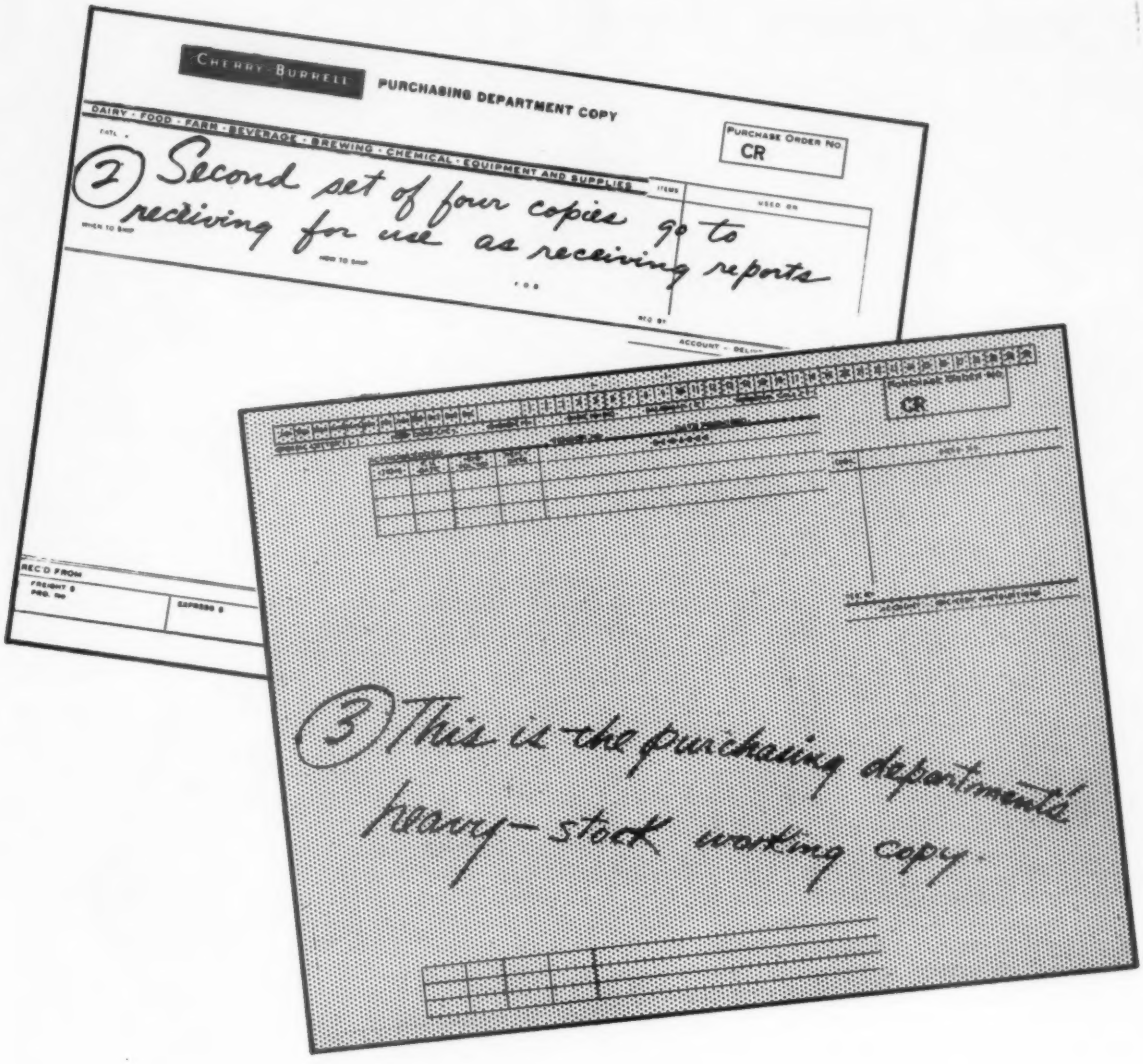
Perforated Purchase Order Cuts Typing Time

By perforating a section of the first four copies of its purchase order, the Cherry-Burrell Corporation is able —in one typing—to put all the information that's needed on its nine-copy purchase order and yet still has control over the data that appears on the first four tear-out copies.

THE PURCHASING department of the Cherry-Burrell Corporation, Cedar Rapids, Iowa is using a purchase order that is versatile as well as being a time saver.

The Cherry-Burrell P.O. is horizontal, pre-numbered and has nine copies. Each set is divided into three different but similar forms. One group has four copies as does the second, while the third is a single, heavy-stock working copy.

Of the first four copies of the form, two are sent to the vendor (the original and the acknowledgment copy). The third is placed in a permanent numerical file in


CHERRY-BURRELL
PURCHASING DEPARTMENT COPY
DAIRY · FOOD · FARM · BEVERAGE · BREWING · CHEMICAL · EQUIPMENT AND SUPPLIES
PURCHASE ORDER NO.
CR
(2) Second set of four copies go to receiving for use as receiving reports
(3) This is the purchasing department's heavy-stock working copy

the purchasing department and the fourth is sent to the requisitioning department.

All four copies of the first section of the purchase order are perforated at one end. When the copies are detached, a 3½" strip is left which contains information that is needed on the remaining copies of the purchase but which is not relevant to the first four copies (see cut). The advantage of this system is that all the typing needed on the purchase order pack can be completed at one time and yet purchasing still has control over the information that appears on the first four copies.

"Use of the perforated form saves a lot of time," says J. W. Breckle, division purchasing manager.

The second group of four copies of the purchase order is sent, intact with carbons, to the receiving department where they are used as receiving reports. The four receiving department copies are divided into two groups. If the order is filled in one shipment, the second two copies are destroyed and only the first two are used. If a partial shipment is received, then the extra set is kept in the receiving department for use when the balance of the shipment comes in.

The purchasing department copy is returned to purchasing when material is received. It shows the quantity, date and how received. The receiving department copy goes with the material through the inspection department to the stockroom.

The final copy is a heavy-stock working copy used in purchasing for posting receiving information, invoices and follow-up data—with a special month and day tickler at the top.

The working copy is kept in an open file until the order has been completed, after which it is filed alphabetically by vendor and then numerically within each vendor's file.

GE Develops Unitized Motor

A UNITIZED fractional horsepower motor, said to be 40% more efficient than conventional motors of the same type, has been developed by General Electric Company, Schenectady 5, N.Y.

The motor is designed for use by original equipment manufacturers in air moving and small machine applications. These include ventilators, heaters, dehumidifiers, air conditioners, coolers, recorders, and projectors.

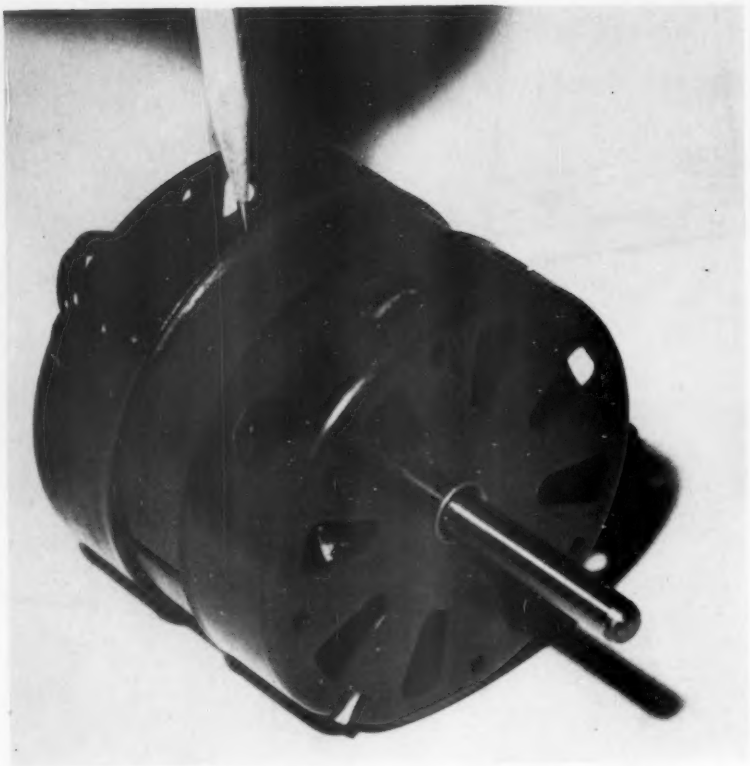
Complete Line Planned

Currently available is a motor with four-pole KSM 59-frame shaded-pole and permanent-split capacitor ratings up through 1/15 hp. Soon these motors will be made in two-pole shaded-pole ratings through 20 milli-horsepower. A complete line of unitized motors is being planned by the company.

A continuous hydrodynamic oil film supports the motor shaft in the sleeve-bearing motors. A capillary retention system prevents excess loss of oil from the lubrication system.

Bearings are permanently aligned in the manufacturing process and are rigidly supported by the end shields. They hold the rotor centered in the stator even against side loading.

The entire stator core is coated by a specially developed resin, with high mechanical and dielectric strength. Core laminations are then fused into an integrated unit. Additional insulation protection is provided by further processing the stator in epoxy varnish after winding.



The new GE motor features a resin material with great holding power. This material unitizes the parts to maintain critical dimensions and mechanical relationships of the parts.

Mounting in Any Position

The motor design permits mounting in any position, without factory modification. A variety of shaft extensions and lead materials can be accommodated.

Both open and enclosed motors are available. Special enclosures can be provided when needed.

Unitizing of the parts is accomplished by permanently fixing the mechanical relationships of the motor with a new resin material developed for its holding power.

GE engineers say that the unitized motor provides high efficiency, low current requirements, low noise levels, uniform starting characteristics, and long bearing life.

For More Information Write No. 204 on Inquiry Card—Page 32→

Anaconda flexible connectors of Teflon carry 40-lb. steam to centrifugal steam dryers at Chromium Process Co., Shelton, Conn.

Steam lines formerly lasted 3-4 weeks—but Hose of Teflon* by Anaconda passes 13 months, still going strong

It's a little over a year that these flexible connectors of Teflon by Anaconda have been serving The Chromium Process Company. During this period, 12 sets of rubber hose would have been required. Add to this the cost of down time and labor for replacement.

This is just another example of how flexible connectors of Teflon by Anaconda are saving time and money in tough jobs. Anaconda offers a line of standard hose assemblies and engineering services for design and development of connectors to meet special applications. Send coupon below for catalog. For technical assistance write: Anaconda Metal Hose Division, The American Brass Company, Waterbury 20, Connecticut.

59127

Flexible Connectors of TEFLON by ANACONDA®

*DuPont trademark for TFE-fluorocarbon resin.

Bank of three centrifugal steam dryers for drying parts which have been plated.

Anaconda Metal Hose Division
The American Brass Company, Waterbury 20, Conn.

Please send me Bulletin TC-101, "Anaconda Flexible Connectors of Teflon." PU

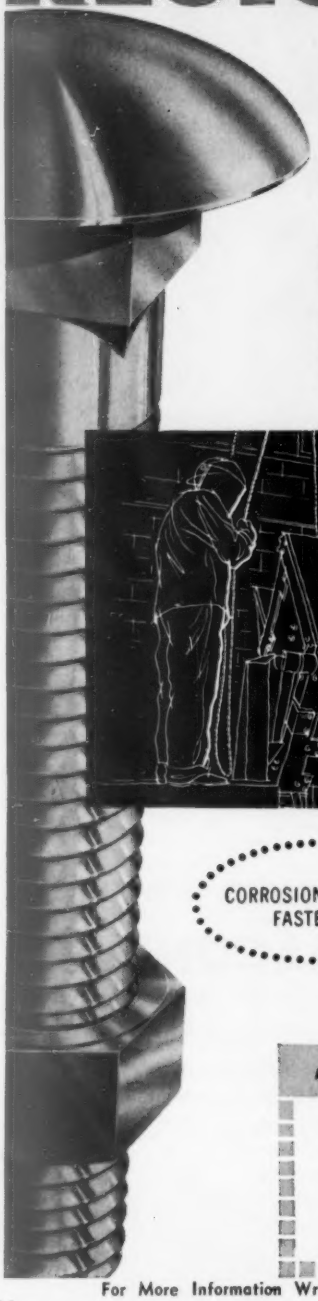
NAME.....

COMPANY.....

STREET.....

CITY.....ZONE.....STATE.....

CORROSION RESISTANCE



is our business at HARPER

Whatever your corrosion problem, Harper has the corrosion-resistant fastening to answer your need. Stainless Steels, Monel, Silicon Bronze, Naval Bronze, Brass, Copper, Aluminum, Titanium are standard metals at Harper. *In fact,* during the past 35 years, Harper has manufactured over 100 different corrosion-resistant alloys into HARPER EVERLASTING FASTENINGS. Millions of standard and non-standard items are carried in stock by Harper and Harper Distributors. See how Harper corrosion-resistance can help you. Write for the facts.

Pouring silicon bronze at The H.M. Harper Company, Metals Division

CORROSION-RESISTANT FASTENINGS

HARPER®

ATTACH TO YOUR LETTERHEAD FOR THE COMPLETE REPORT

H. M. HARPER COMPANY
8201 Lehigh Avenue • Morton Grove, Illinois

Gentlemen:

Please send me your report on "Corrosion Resistance" at no cost or obligation.

For More Information Write No. 205 on Inquiry Card—Page 32

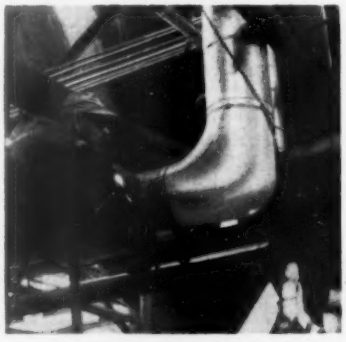
Products

Industrial Cleaner for Wet or Dry Pick-Up

Ace drum conversion units are intended for low-cost out-in-the-plant cleaning. Four models are offered, from Model 155-PDT—which includes power unit, dust bag, support rod, cover, dolly and 55 gal. steel drum—to standard set made up of cover, dust bag and support rod. Customer may order only units needed and make up his own cleaner, using any 55-gallon steel drum and replacing it when filled. Available from Ace-Sycamore, Inc., 448 DeKalb Ave., Sycamore, Illinois.

Write No. 18 on Inquiry Card—Page 32

Solving the "Cracked Ell" Problem



Gasco humped aluminum elbows to protect the "weakest links" in insulated piping systems —"ell joint cracks"—are now available from General Aluminum

(*Please turn to page* 98)

Greater Corrosion Resistance

Longer Fatigue Life

Less Product Incrustation

new tests prove

CONTOUR-WELDED* STAINLESS TUBING

provides all three!

A recent series of tests prove TRENTWELD® tubing, made by the exclusive *Contour-Weld* process, is smoother than any other full-finished tubing. And still other tests show this extra smoothness ensures longer fatigue life, greater resistance to corrosion and less product incrustation.

But here's why *Contour-welded* tubing is smoother inside:

First, it's smoother than seamless because it's formed from uniformly rolled strip steel whereas seamless must be extruded.

And second, it's smoother than other welded tubing because the Trent-patented *Contour-Weld* process virtually eliminates the weld bead.

But why not get full details on *Contour welded* tubing's superiority? Send for the free 48-page "Trent Weld Manual." It's chock-full of details on *Contour-welded* tubing in sizes from ⅛" to 40" — in stainless and high alloy steels, titanium, zirconium, zircaloy and Hastelloy†. Write: Trent Tube Company, Box 2518, Pittsburgh, Pa.

†Trademark Haynes Stellite Co.

In Conventional Welding

With Contour Welding

In **CONVENTIONAL WELDING** of tubes, gravity pulls molten metal down to form a bead that is difficult to remove by cold working. And cold working may lead to undercuts, focal points for fatigue cracks and corrosive attacks. Cleaning becomes difficult.

*With **CONTOUR WELDING** the tube is welded at the bottom. Gravity still pulls the molten metal down inside the tube, but now the weld area corresponds to the contour of the tube. There's virtually no weld bulge on the inside surface. And even on the O.D., the weld seam more closely conforms to the contour of the tubing.

CONTOUR TRENTWELD®

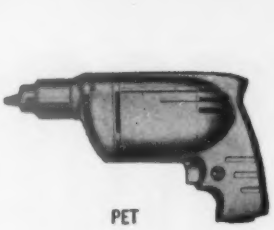
stainless and high alloy pipe and tubing

TRENT TUBE COMPANY

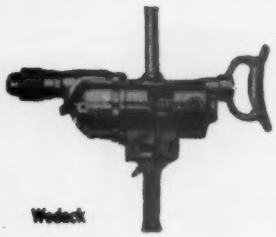
Subsidiary of Crucible Steel Company of America • GENERAL OFFICES: East Troy, Wisc. • MILLS: East Troy, Wisc.; Fullerton, Calif.

For More Information Write No. 206 on Inquiry Card—Page 32

For More Information Write No. 207 on Inquiry Card—Page 32→



PET



Wodack

Remington-Mall

Skil

33 GREAT MAKES

with ONE big feature in common–

Chicago Pneumatic

Buckeye

Ram

Wen

Aro

Milwaukee

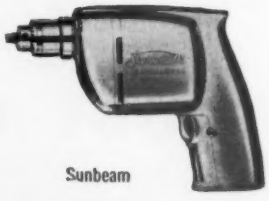
Pioneer

Master Pneumatic

Sioux

Millers Falls

Porter Cable

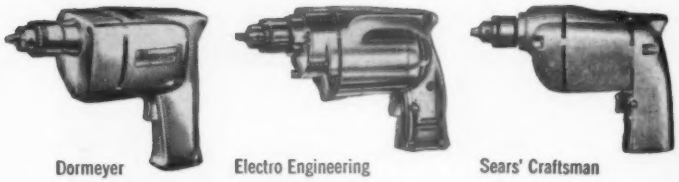


Sunbeam

McGraw-Edison

Ward's Powr-Kraft

Jacobs CHUCKS



A PARTNERSHIP IN PROGRESS

Your industrial supply distributor makes it his business to know your business. He is always available and ready to fill your needs quickly, dependably and economically. When you need chucks, you can depend upon Jacobs and the Jacobs industrial supply distributor who works with you . . . your partner in progress through service.

INDUSTRIAL DISTRIBUTORS · SERVING INDUSTRY ECONOMICALLY · THE RIGHT HAND OF PRODUCTION

THE JACOBS MANUFACTURING COMPANY, WEST HARTFORD, CONNECTICUT

THINK HOW YOU CAN

IMPROVE YOUR PRODUCT

WITH THESE LOW COST

STACKPOLE SWITCHES!

Get This GUIDE TO MODERN SWITCHING

Ask for 8-page Switch Bulletin RC-11D

World's largest slide switch line—over 12 low cost standard types—dozens of economical adaptations. NEW colored knobs. Special conventional and miniaturized switches designed and produced for large quantity users. *Electronic Components Division,* STACKPOLE CARBON COMPANY, St. Marys, Pa.

For More Information Write No. 208 on Inquiry Card—Page 32

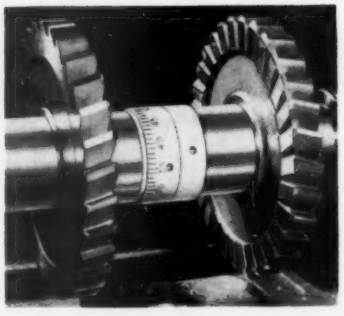
Products

(Continued from page 94)

Supply Corp., Kansas City 26, Missouri. Humped design compensates for pipe expansion and contraction and for differences in radii. Produced in thirteen interchangeable sizes, elbows will fit 109 combinations of varying pipe and insulation thicknesses, from 3" OD through 12.81" OD, replacing cement, mastic weatherproofing, chicken wire, canvas and paint. Two-piece heavy guage (025-032), with smooth surfaces inside and out, elbows are designed to fit either long or short radius ells, and elbow halves can be clamped with two metal bands in five minutes or less.

Write No. 19 on Inquiry Card—Page 32

New Arbor Spacer Saves Time, Money

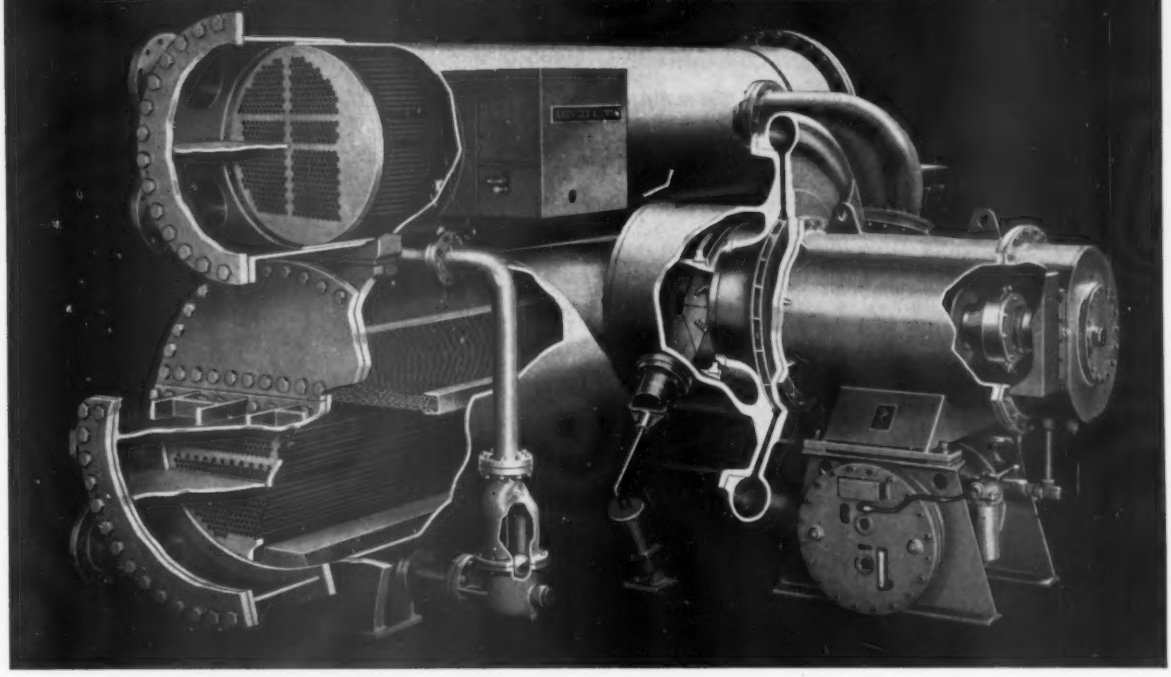


New adjustable micrometer arbor spacer that cut set-up time in half and practically eliminate scrap are being manufactured by Mayer Engineering and Manufacturing Co., 815 S. 9 St., Milwaukee 4, Wisc. Used primarily for straddle milling, spacers can be utilized in raising blocks, fixture spacers, gauge sets, and stops for milling machines, lathes, drill presses, turret lathes, and die jacks. They have one-thousandth gradations and make shimstock and paper unnecessary for spacing. Available in 3/8" to 1-1/2" widths, larger sizes up to 5" on special order. Narrow sizes have 1/16" adjustment and wider sizes up to 1/4". Each spacer has a key way slot. Those with widths 3/8" to 1" are non-locking type; widths 1-1/2" and up are locking type.

Write No. 20 on Inquiry Card—Page 32

20 degrees cooler inside!

Buildings cooled by American-Standard Tonrac®



WOLVERINE TRUFIN® SAVES SPACE

provides more heat transfer surface

No finer proof of the space saving and heat transfer abilities of Wolverine Trufin Type S/T—the integrally-finned condenser tube—can be found than in its use by American-Standard Industrial Division, Detroit, Michigan.

American-Standard uses Trufin Type S/T in the evaporator and condenser tube bundles of Tonrac—its completely self-contained, hermetic, centrifugal, refrigerating machine. This single-level unit is widely-used to supply chilled water for air conditioning systems in public buildings, offices and industrial plants.

Wolverine Trufin Type S/T is of great value here, because its extended surface has approximately 2½ times as much outside surface area as ordinary, plain condenser tube. In units such as Tonrac this enables the manufacturer to pack greater heat transfer capacity into a given area thus reducing overall unit size.

If heat transfer efficiency is important to your company why not follow American-Standard's lead and specify Wolverine Trufin Type S/T for shell and tube condenser use. Write for more information or ask for the services of a highly-trained Wolverine Sales Representative.

Wolverine Trufin is available in Canada through the Unifin Tube Division, London, Ontario.

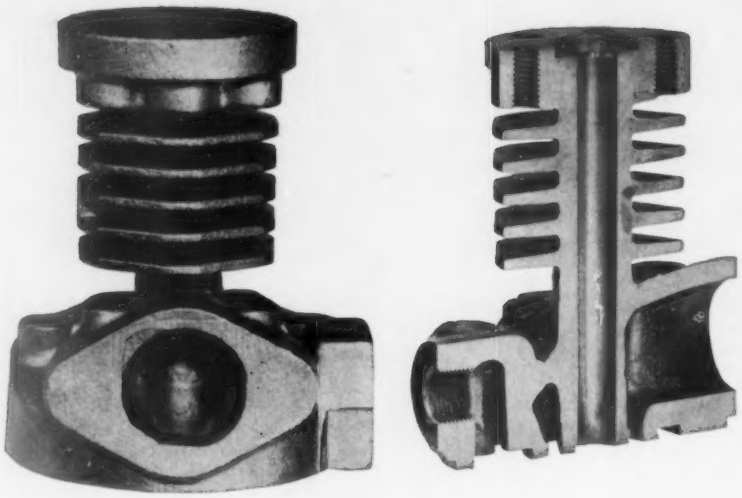
CALUMET & HECLA, INC.
CALUMET DIVISION
URANIUM DIVISION
GOODMAN LUMBER DIVISION
WOLVERINE TUBE DIVISION

In Canada:
CALUMET & HECLA OF CANADA LIMITED
WOLVERINE TUBE DIVISION
CANADA VULCANIZER & EQUIPMENT CO. LTD.
UNIFIN TUBE DIVISION

WOLVERINE TUBE
DIVISION OF
CALUMET & HECLA, INC.
17250 Southfield Road
Allen Park, Michigan
Manufacturers of Quality-Controlled Tubing and Extruded Aluminum Shapes

PLANTS IN DETROIT, MICHIGAN AND DECATUR, ALABAMA
SALES OFFICES IN PRINCIPAL CITIES
EXPORT DEPT. 13 E. 40TH ST., NEW YORK 16, N.Y.

For More Information Write No. 209 on Inquiry Card—Page 32



HIGH PRESSURE LOW COST

This 8 pound Meehanite Metal casting made for the Joy Manufacturing Co. by Hamilton Foundry is a fourth stage air compressor cylinder. Pressures build up to 6,000 p.s.i. and require a high strength, pressure tight and wear resisting casting. Alloyed Meehanite®, oil quenched and tempered, raised Brinell hardness of the cylinder wall to 275-300, and increased tensile strength to 60,000 p.s.i. Meehanite was chosen for this casting because controlled structure and small uniform flake graphite produce pressure tight castings of uniform density and strength.

Manufacturing costs drop when uniform, high quality castings go through production. In this case, Meehanite castings from Hamilton Foundry give Joy tight control on finished parts costs by combining dimensional accuracy, uniform machinability, a low rejection rate, and delivery on schedule. Pressure tightness, long service life and fine surface finish insure Joy's reputation for product quality.

When new and unusual design problems arise in the selection of metal and the casting of parts, you will find that the skill and integrity of your foundry is your best insurance that specifications—and delivery schedules—will be met.

GRAY IRON • ALLOYED IRON • MEEHANITE® • DUCTILE (NODULAR) IRON • NI-RESIST • DUCTILE NI-RESIST • NI-HARD

HAMILTON FOUNDRY

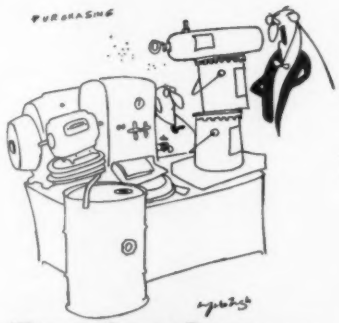
The Hamilton Foundry & Machine Co., 1551 Lincoln Ave., Hamilton, Ohio • TW 5-7491
For More Information Write No. 210 on Inquiry Card—Page 32

Products

Hand Protection Forms "Invisible Glove"

Protex-A-Hand provides hand protection in the form of foam cream from an aerosol can. Application before starting work forms invisible "protective glove" to seal out grease, dirt, paints and varnishes, solvents and chemicals, etc. Washing at end of work period removes Protex-A-Hand and accumulated grease and grime. Product is said to be recommended by doctors, safety engineers, and insurance companies. Garage mechanics and shop or office workers who handle chemicals, inks or other "messy" and possibly harmful materials can use it. Two applications are required for normal working day. The large can contains over 225 applications. Produced by Acrolite Products, Inc., 108 Ashland Ave., West Orange, New Jersey.

Write No. 21 on Inquiry Card—Page 32



"Barnes, Barnes, Barnes, ... where's your sales resistance? . ."

Every Mead Bonded Container is guaranteed to equal or exceed the specifications set up by Rule 41, Uniform Freight Classification and Rule 5, National Motor Freight Classification. If Mead Bonded Containers do not meet these specifications, Mead will pay the full cost of the defective containers or rush replacements to you.

Want to know more about Mead Bonded Containers, Mead Containers research and design facilities? Wire or call collect the Mead Containers office nearest you.

MEAD
containers

MEAD CONTAINERS, INC.
Executive Offices, 4927 Beech St., Cincinnati 12, Ohio
National Sales Offices, 230 Park Avenue, New York 17, New York
6124 N. Milwaukee Avenue, Chicago 46, Illinois and in principal cities.
Subsidiary of **THE MEAD CORPORATION**

MEAD
BONDED
CONTAINERS

For More Information Write No. 211 on Inquiry Card—Page 32

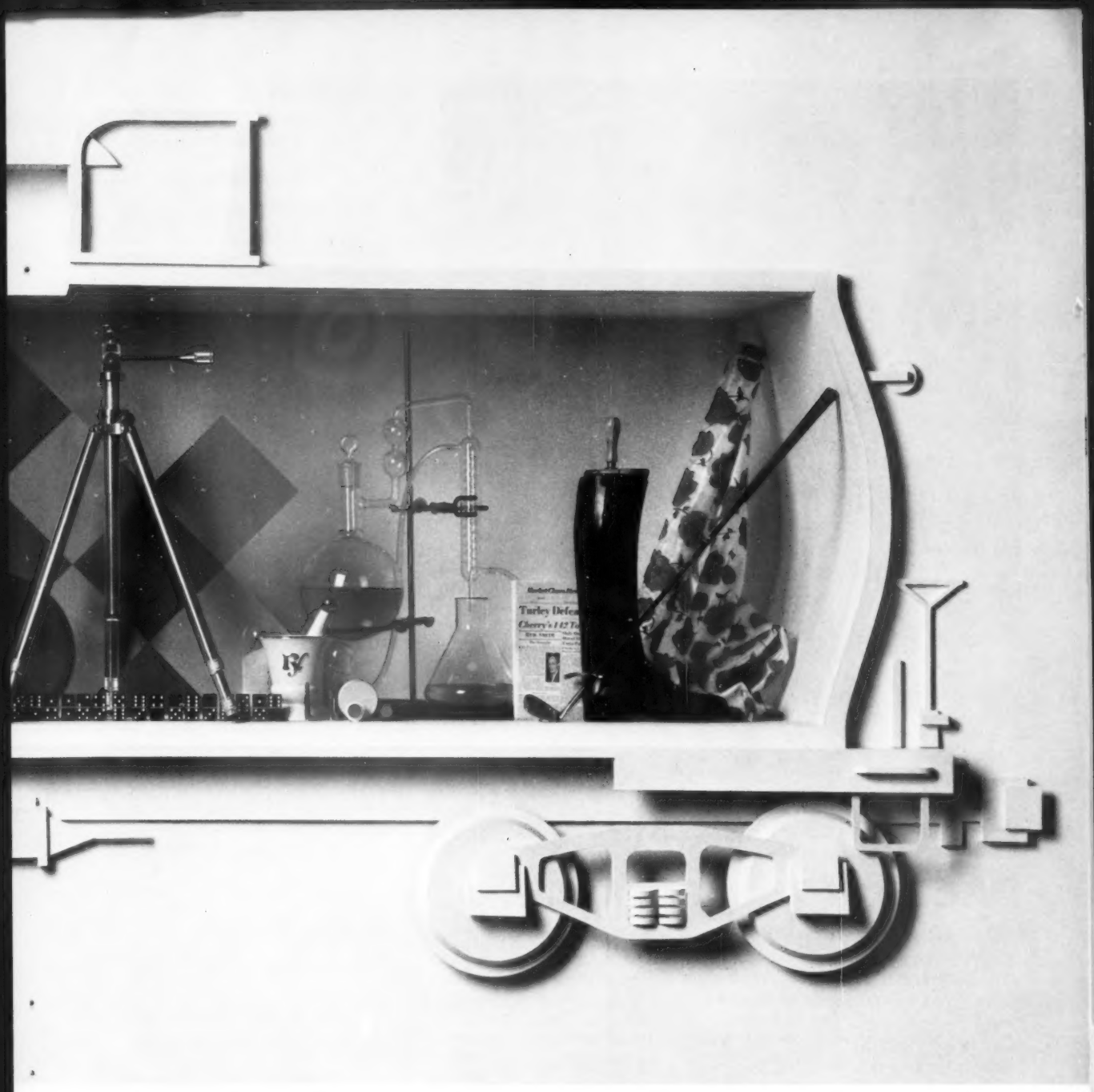
For More Information Write No. 212 on Inquiry Card—Page 32→

COLUMBIA-SOUTHERN CHEMICALS CREATE

SALES MAKE MORE PROFITS when they're balanced carefully against product development, processing, and marketing costs. That's the big reason you look so closely at the total "package" you get when you buy such essential materials as chemicals.

Naturally, you start with dependably high-purity basic materials. You require on-schedule delivery, geared to your specific handling and use. Perhaps most of all, you want the kind of practical, market-conscious technical assistance that helps open new fields for your present or contemplated products. In brief, you need a chemical partner, not simply a supplier. So hard to locate? Not at all. Naturally, you're thinking of:

Columbia-Southern Chemical Corporation, One Gateway Center, Pittsburgh 22, Pennsylvania. Offices in fourteen principal cities. In Canada: Standard Chemical Limited.



PROFITABLE SALES FOR YOUR PRODUCTS

CHLORINE regroups molecules for economical processing of plastics, solvents, paper products, wonder drugs, hundreds of products.

CAUSTIC SODA and its voracious appetite work thriftily to produce textiles, packaging films, petroleum products, innumerable goods.

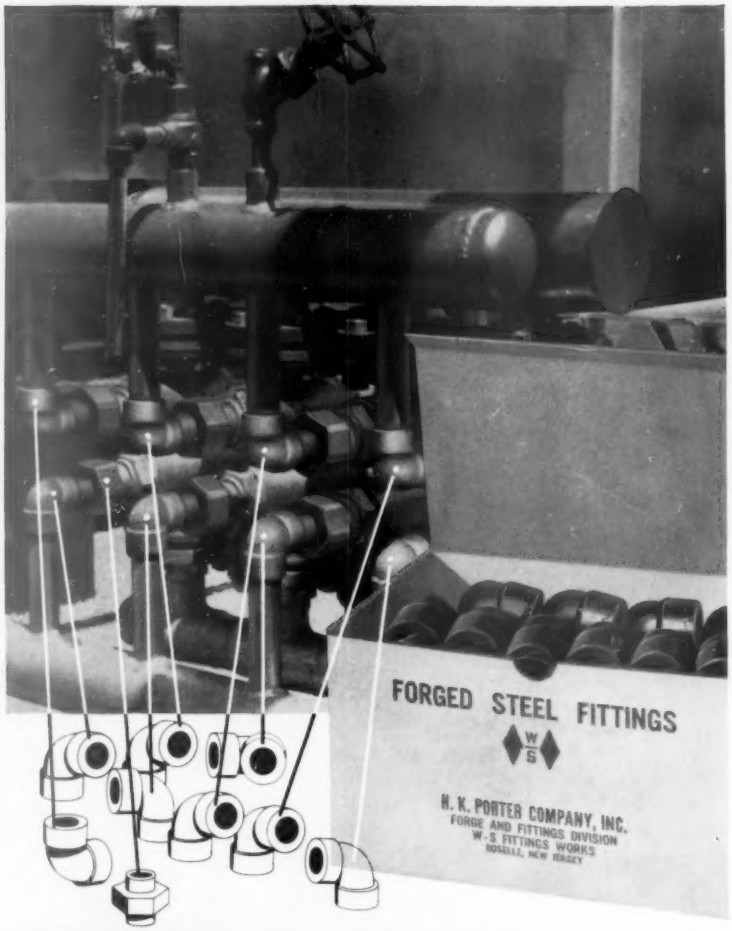
SODA ASH is indispensable to the manufacture of glass, soaps and detergents, metals, pigments, other chemicals.

RUBBER PIGMENTS improve natural and synthetic stocks, make possible use of sales-spurring colors in quality rubber goods.

COLUMBIA-SOUTHERN CHEMICAL CORPORATION

A Subsidiary of Pittsburgh Plate Glass Company

Anhydrous Ammonia, Benzene Hexachloride, Calcium Chloride, Calcium Hypochlorite (Pittchlor®, Pittabs®), Carbon Tetrachloride, Caustic Potash, Caustic Soda, Chlorine, Chlorinated Benzenes, Chloro-IPC, Chrome Chemicals, Hydrogen Peroxide, Muriatic Acid, Pacific Crystals, Perchlorethylene, Rubber Pigments (Calcene®, Hi-Sil®, Silene®), Soda Ash, Soda Briquettes, Sodium Bicarbonate, Sodium Sulfate, Titanium Tetrachloride, Trichlorethylene



FORGED for long life
PACKAGED for convenience

The "Forged" in W-S Forged Fittings means dependability under the toughest piping-job conditions. "Forged" gives you the added resistance to pressure, heat, corrosion, shock and vibration needed to make your installations long-lived and safe. And W-S Fittings are easily installed, with tight fits and perfect alignment . . . thanks to W-S precision machining methods and quality forging techniques.

Packaging, too, is a W-S brand advantage. Virtually any "mix" of fitting types and sizes can be packed in a convenient W-S Case or Half-case . . . each type and size in its own carton.

Specify W-S on your next order. For specifications and Distributor locations, write *Forge and Fittings Division, H. K. Porter Company, Inc., Box 95, Roselle, New Jersey.*

FORGE AND PORTER FITTINGS DIVISION

H.K. PORTER COMPANY, INC.

PORTER SERVES INDUSTRY: with Rubber and Friction Products—THERMOID DIVISION; Electrical Equipment—DELTA-STAR ELECTRIC DIVISION, NATIONAL ELECTRIC DIVISION; Copper and Alloys—RIVERSIDE-ALLOY METAL DIVISION; Refractories—REFRACTORIES DIVISION; Electric Furnace Steel—CONNORS STEEL DIVISION, VULCAN-KIDD STEEL DIVISION; Fabricated Products—DISSTON DIVISION, FORGE AND FITTINGS DIVISION, LESCHEN WIRE ROPE DIVISION, MOULDINGS DIVISION; and in Canada, Refractories, "Disston" Tools, "Federal" Wires and Cables, "Nepcoduct" Systems—H. K. PORTER COMPANY (CANADA) LTD.

For More Information Write No. 213 on Inquiry Card—Page 32

Products

333 kva Distribution Transformers

Distribution transformers, rated up to 333 kva and light enough to be placed on a utility pole top, have been announced. Lightweight product in the larger ratings has been achieved by redesigning the corecoil assembly and eliminating the necessity for heavy structural braces. Use of external flat cooling tubes reduces tank height and size. The 333 kva 7200-volt unit weighs only 2100 lbs and is approximately 24 in. in diameter and 48 in. high from base to bushing tip. Other units with the new design, rated at 167 and 250 kva, weigh 1375 and 1700 lbs, respectively. Made by Westinghouse Electric Corp., P.O. Box 2099, Pittsburgh 30, Pa.

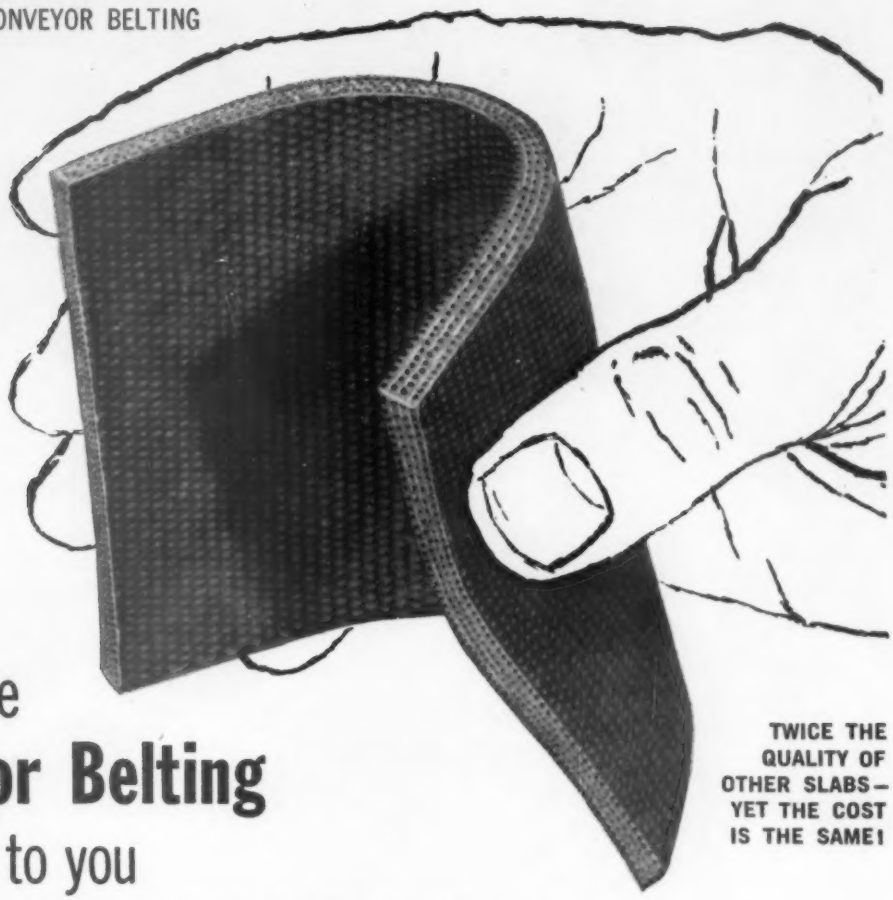
Write No. 22 on Inquiry Card—Page 32

New Connectors Cut Assembly Operations

A new line of BNC RF connectors is available from Amphenol-Borg Electronics Corp., Chicago 50, Ill. Partially pre-assembled before shipment into three basic parts plus an optional boot, "Quick-Crimp" connectors eliminate many assembly operations, save time. Nineteen different connectors which will mate with standard BNC's if desired are available. Center contacts are gold-plated; voltage rating is 500 V. peak and VSWR is low up to 10K mc.

Write No. 23 on Inquiry Card—Page 32

INDESTRUCTIBLE
SLAB CONVEYOR BELTING



TWICE THE QUALITY OF OTHER SLABS— YET THE COST IS THE SAME!

Low-cost, Long-life **Conveyor Belting** —straight to you from your "U.S." Distributor's stocks—

NO WAITING FOR FACTORY DELIVERY

U. S. Indestructible® Slab Belting is the low-cost belting especially suitable for a wide range of uses by industry. It is the right belt for light assembly line work and horizontal (and slight incline) package material handling. Your "U. S." Distributor cuts the conveyer belting slab to the size of your conveying equipment, and delivers it to your plant without delay.

U.S. Indestructible Belting is the long-life belting because it is made of flexible *natural* rubber, with thick coatings of supple natural rubber between flexible sturdy duck. The belt is orange-colored, with friction surface and skims. It has much higher adhesion than any other slab, yet costs no more. It fits the smaller pulleys of package handling equipment.

Contact your local "U. S." Distributor or use the coupon below.

United States Rubber
Rockefeller Center, New York 20, N. Y.

I convey the following materials_____
Please have your field representative call upon me to examine my conveyor belting requirements.

Name_____

Address_____

City_____ Zone____ State_____

Mechanical Goods Division

United States Rubber

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

Rockefeller Center, New York 20, N.Y. In Canada: Dominion Rubber Company, Ltd.

For More Information Write No. 214 on Inquiry Card—Page 32

For More Information Write No. 215 on Inquiry Card—Page 32 →

integrated CRUCIBLE steel service

Ask the Crucible inside account salesman for a run-down on all the services his warehouse offers. He's your contact with completely integrated services ranging from local delivery of the steels you need to metal research.

makes available a local

4-POINT SPECIALTY STEEL SERVICE

to both large and small users

All 31 warehouses offer
(1) simplified ordering
(2) in-stock deliveries
(3) metalworking assistance
(4) metal research

Each Crucible warehouse is a *specialty steel service center* – stocked, staffed and equipped to give you a wide range of services.

Here's what the warehouse near you can offer –

(1) *Simplified Ordering.* The inside account salesman assigned to you expedites all your orders, arranges for extra services and speeds up shipments when necessary. His personal responsibility means convenient ordering, no delays, no mistakes, nor misunderstandings.

(2) *In-stock delivery* of 16,000 specialty steel items, cut or processed to your specifications. Because warehouses maintain these stocks at high levels, you're sure of getting immediate delivery.

(3) *Metalworking assistance.* Experienced service engineers will work with your engineers to solve machining, heat treating or any other metalworking problem.

(4) *Metal research.* Crucible metallurgists visit local warehouses regularly. They'll bring the benefits of Crucible's experience and continuing research to your plant, too.

This service in depth is available because the Crucible operation is completely integrated from ore to steelmaking to warehouse delivery to you. But get full details. Ask the Crucible salesman to list all the services his warehouse offers. *Crucible Steel Company of America, Dept. PE13, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*

STOCK LIST

Keeps you up-to-date on local stocks of specialty steels. Just ask the Crucible salesman to place your name on the regular mailing list.

One Source For All These Steels

To speed up cutting on your orders, warehouses are now equipped with the latest hacksaws, and continuous-cutting and self-aligning bandsaws.

Average local warehouse continually replenishes stocks of 16,000 specialty steel items—gives you overnight delivery on almost all.

Sales-service engineers — who specialize in tool steels, stainless, alloys— will gladly help you with any type of metalworking problem.

TOOL STEELS–Water, oil, air hardening, shock resisting, hot work, plastic and die casting steels in all forms, including bars, sheets, plates, drill rod, hollow bars, forgings and flat ground stocks

HIGH SPEED STEELS–Crucible's famous "Rex"® steels: Rex Thrift Finish rounds, hot rolled and cold drawn flats and squares, drill rod, forgings, sheets, plates, and tool bits

STAINLESS STEELS – Bars, sheet, strip, wire, cold heading wire, metalizing wire, plates, angles

FREE MACHINING STEELS – Crucible Max-el®

rounds, hexagons, plates and brake die steel

ALLOY STEELS – Bars, billets, strip and sheet

COLD ROLLED CARBON SPRING STEELS

DRILL STEELS – Hollow and solid drill steels

ALUMINUM EXTRUSION DIE STEELS

HOLLOW TOOL STEEL

WELDING AND HARD FACING ROD

PLASTIC MOLD STEELS

PERMANENT MAGNETS

– and many others

CRUCIBLE STEEL COMPANY OF AMERICA

Branch Offices and Warehouses: Atlanta • Baltimore • Boston • Buffalo • Charlotte • Chicago • Cincinnati • Cleveland • Columbus • Dallas • Dayton Denver • Detroit • Grand Rapids • Harrison • Houston • Indianapolis • Kansas City • Los Angeles • Milwaukee • New Haven • New York Philadelphia • Pittsburgh • Portland, Ore. • Providence • Rockford • Salt Lake City • San Francisco • Seattle • Springfield, Mass. • St. Louis St. Paul • Syracuse • Tampa • Toledo • Tulsa • Toronto, Ont.

PAGE

FENCE

Fence value depends on
—quality materials
—quality installation
You get both from PAGE

New Aluminized Fabric!
(other quality fabrics available:
galvanized steel,
aluminum,
stainless steel)

8 basic fence designs
6 gate styles

Expert installation
by specialists

Registered Certificate
of Quality furnished
to property owner

Good fences—since 1883

Write for helpful booklet

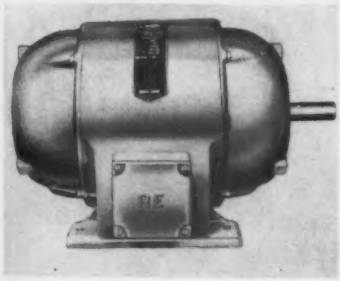
PAGE FENCE ASSOCIATION
National Headquarters • Monessen, Pa.

A product of Page Steel & Wire Division
American Chain & Cable Company, Inc.

For More Information Write No. 216
on Inquiry Card—Page 32

Products

Increased Safety On Heavy Loads



Better control and increased safety on heavy loads are promised with Reuland crane-hoist motors. Designed for bridge, trolley and hoist drives wherever high slip and high torque characteristics are needed, they are made especially for use on materials handling equipment and are available for both O.E.M. and replacement use. Many combinations and mounting adaptations through use of flanges, rings, and feet are available. Manufactured by Reuland Electric Co., Alhambra, Calif., motors come in ratings from 1/2 h.p. through 50 h.p., from sizes 182 through 365 U, drip-proof or totally enclosed 15-minute or 30-minute duty ratings. All units have lightweight cast aluminum frames.

Write No. 24 on Inquiry Card—Page 32

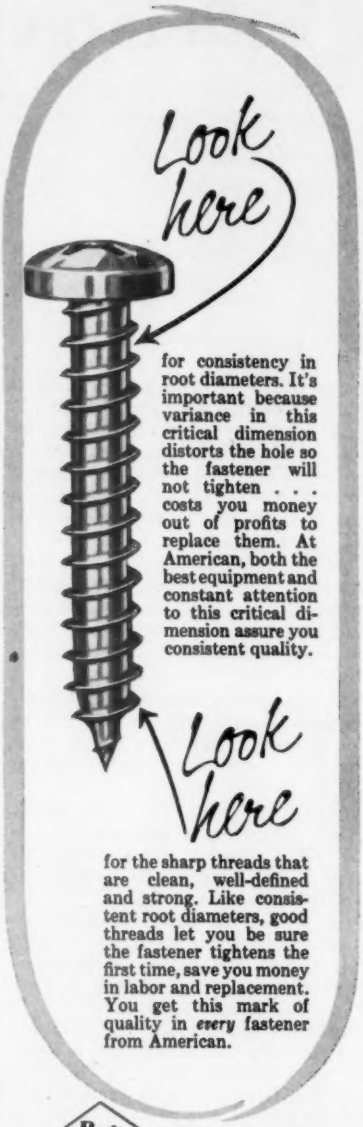
Pressure-Sensitive Low-Temperature Tape

"Permacel 331" is a new pressure-sensitive packaging tape made of Saran. The 2 mil. smooth backing is coated with a special translucent adhesive, and tape will remain flexible at low temperatures, making it ideal in the frozen food industry. Printable and with good resistance to oil, water, gasoline, chemicals and weather, tape is also recommended as label material for outdoor application. Saran film has good flex and scuff resistant qualities, as well as high dielectric strength, and tape can be used as a label covering or as protective mask where oil or chemicals are present. Permacel, New Brunswick, N.J.

Write No. 25 on Inquiry Card—Page 32

HOW

to know you're getting the quality you want


Look here
for consistency in root diameters. It's important because variance in this critical dimension distorts the hole so the fastener will not tighten . . . costs you money out of profits to replace them. At American, both the best equipment and constant attention to this critical dimension assure you consistent quality.
Look here
for the sharp threads that are clean, well-defined and strong. Like consistent root diameters, good threads let you be sure the fastener tightens the first time, save you money in labor and replacement. You get this mark of quality in *every* fastener from American.

Profit Improvement Program

Quality fasteners cost more to produce . . . improve your profits when used!

Buy here

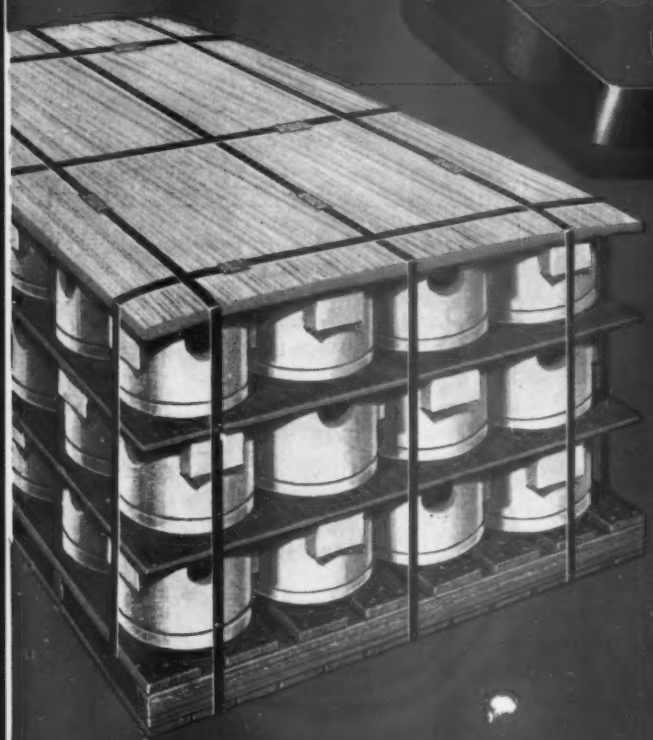
American SCREW COMPANY

Willimantic, Conn. • Chicago, Ill. • Detroit, Mich.

For More Information Write No. 217
on Inquiry Card—Page 32

For More Information Write No. 218
on Inquiry Card—Page 32→

New Brainard HiFlex STRAP



New heavy duty strapping–
Lighter gauge–Just as strong–
More feet per pound–
More package conformity

After exhaustive testing in Sharon Steel laboratories, Brainard offers heavy duty strapping customers a new .031 cold-rolled strap to supplement its heavy duty strapping line. We call it "HiFlex"!

HiFlex features superior flexibility for better package conformity . . . gives more feet per pound . . . handles easier . . . faster. Now available along with .035 in ¾" and 1¼" sizes.

This typical advance in heavy-duty strapping is why we continue to say, "Brainard is the strapping industry's most rapidly expanding line."

Brainard representatives are available for consultation. Call or write for a sample —we'll be there!

DIVISION OF SHARON STEEL CORP · WARREN, OHIO

BRAINARD Safe-Ty STRAPPING

In Canada: Brainard Steel, Canadian Division, Toronto, Montreal

MAKERS OF TENSIONAL, HEAVY DUTY STRAPPING, SEALS, ACCESSORIES, TOOLS FOR CARLOADING AND PACKAGING

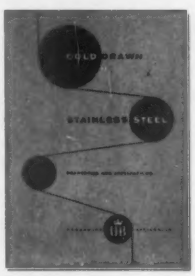
When EXTRA Performance Is Needed...

And little wonder... for Uddeholm stainless steels give you the corrosion resistance you need, without sacrificing other performance requirements. Uddeholm stainless strip steels, for example, can provide exceptional fatigue resistance, extremely sharp edges, and other properties you might expect only from high carbon strip steel. As a result, Uddeholm stainless can often replace carbon steel —eliminating corrosion problems, or the need to use chrome plated or copper alloy parts. Uddeholm's Cold Drawn Stainless Wire provides similar advantages. Both strip steel and wire are available in many stainless grades. The three most effective types of hardened and tempered stainless for producing parts or springs are:

UHB-731 For applications requiring good toughness and good blanking properties even on fairly thick material.

UHB-716 For applications requiring high hardness combined with good elasticity and edge sharpness.

AEB Primarily a cutlery steel for razor blades, surgical steel and other products requiring maximum edge sharpness.



UDDEHOLM Cold Drawn Stainless Steel Wire
is described in a new, informative and well-illustrated booklet that covers types, properties and applications.

UDDEHOLM Martensitic Stainless Strip Steel
is also given complete coverage in a newly-printed booklet.

Write For Your Copies Today

In All Uddeholm Strip Steels You Are Guaranteed:
Maximum Fatigue Strength • Accurate Dimensions • Fine Surface Finish • Excellent Wear Resistance

UHB

UDDEHOLM COMPANY OF AMERICA, INC.

Tool and Die Steels
Cold Rolled Spring Steels

Offices and Warehouses

New York: 155 East 44th Street, MUrray Hill 7-4575
Cleveland: 4540 East 71st Street, Dlamond 1-1110
Los Angeles: 5037 Telegraph Road, ANgelus 2-5121

District Representatives

CHICAGO: Frank J. Mackin, Leroy E. Marshall, 55 East Washington, STate 2-1649
DETROIT: Warren H. Nugent, 17304 Lahser Road, KEnwood 5-6340
PHILADELPHIA: Frank T. Campagna, 1418 Walnut St., PEnnypacker 5-2114
PITTSBURGH: Lohmeyer Steel Co. 345 Mount Lebanon Blvd., LOcust 3-0122

For More Information Write No. 219 on Inquiry Card—Page 32

Products

Holds Cards, Will Travel

A traveling holder of molded plastic for keeping tabulating cards in place during assembly or production operations is now available. For use in conjunction with business machine systems, the holder is provided with eight riveted eyelets so it can be hung by a hook, thin wire, or cord and affixed to jigs, fixtures, or units traveling on conveyor belts. Cards will not fall out or become lost as work travels from station to station. Model 550S holds 75 standard tabulating cards; Model 500S holds 150 cards. Cowan Boyden Corp., 50 Aleppo St., Providence 9, Rhode Island.

Write No. 26 on Inquiry Card—Page 32

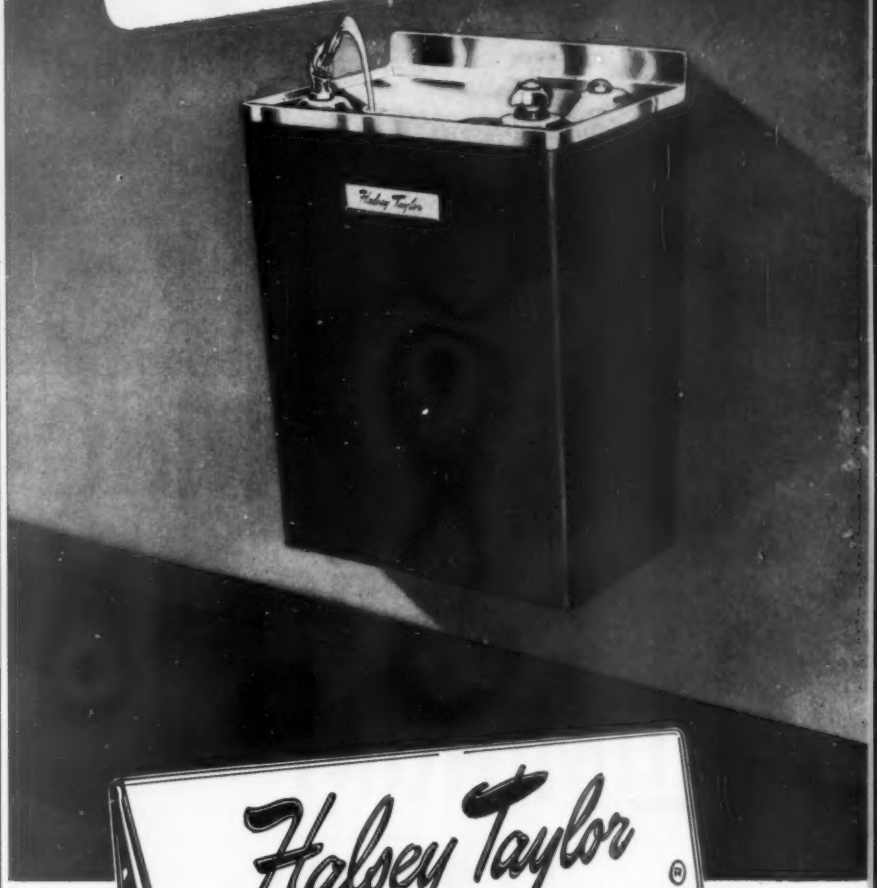
New Series of Converter-Transducers

A series of converter-transducers is now available which provide direct current output with alternating current input. Where AC is present, transducer replaces a potentiometer. Its advantages are: no sliding contacts, infinite resolution, resistance to severe shock and vibration, higher linearity, and sensitivity up to 500 volts per inch displacement. Vinson Eng. and Sales Co., 8044 Woodley Ave., Van Nuys, California.

Write No. 27 on Inquiry Card—Page 32

For More Information Write No. 220 on Inquiry Card—Page 32→

NOW... a cooler that's mounted on the wall off the floor!

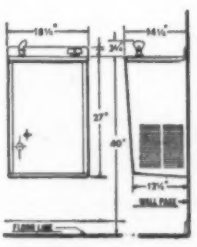


Halsey Taylor

WALL MOUNT

..here by popular demand!

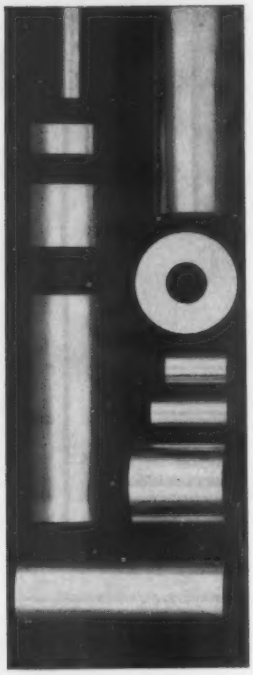
- A Beautifully Proportioned Water Cooler Mounted on the Wall, *Off the Floor*
- Plumbing & Electric Connections Within the Water Cooler—*Out of Sight*
- Cleaning Maintenance Problems Eliminated—No Dirt Catching Corners or Crevices
- Stainless Steel Top Contoured for Easy Cleaning
- Wall Face Splash Designed as an Integral Part of Top



The Wall-Mount is available in sizes 6, 11 and 16 gallon.

For further information write

The Halsey W. Taylor Co., Warren, Ohio



NOW BUNTING OFFERS ALCOA ALUMINUM BARS!

- Outstanding quality at low cost
- Withstands loads up to 10,000 psi
- Runs as much as 20° cooler than other materials
- High conformability
- Reduces starting torque and wear
- Easily, speedily machined to ideal finish
- Proved in rugged rolling mill service
- Now quickly available anywhere in U.S.

ALUMINUM bar stock is now as near as your telephone! Wherever you may be, there's a Bunting Distributor ready to deliver Alcoa® Aluminum bars promptly.

Call your Bunting Distributor. Try aluminum in your plant. See for yourself how aluminum *stands up* . . . and how much *you* stand to *save!*

Aluminum Company of America
1839-E Alcoa Building, Pittsburgh 19, Pa.

ALCOA ALUMINUM

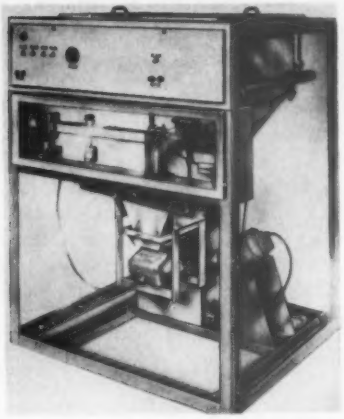
Your Guide to the Best in Aluminum Value

For Exciting Drama Watch "Alcoa Theatre," Alternate Mondays, NBC-TV, and "Alcoa Presents," Every Tuesday, ABC-TV

For More Information Write No. 221 on Inquiry Card—Page 32

Products

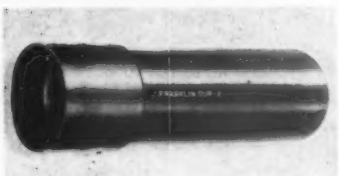
Electronically Controlled Feeding by Weight



A highly accurate weigh-feeder machine has been announced by Syntron Company, 903 Lexington Ave., Homer City, Pennsylvania. Designed for electronically controlled feeding of dry chemicals and other bulk materials in water, chemicals, food and other industrial processing operations, the new machine provides reliable, continuous volume feeding at any rate between 3 and 300 pounds per hour. Electronic control assures high feeding accuracy, and electromagnetic vibrator keeps materials free-flowing. Standard machine can be equipped with many optional features, such as heat lamps, special troughs, mixing tanks, etc. Complete unit, including hopper, vibrating feeder, and weighing, recording and control components, is entirely enclosed within dust-tight sheet metal cabinet.

Write No. 28 on Inquiry Card—Page 32

Lightweight, Durable Plastic Conduit



A conduit manufactured from a new plastic material approxi-

(*Please turn to page* 114)

You can keep

2365

BEARINGS AND BARS IN YOUR DESK DRAWER

Let your local Bunting Distributor carry your bearings inventory. Hundreds of Bunting Distributors and Eleven Bunting Branches supply from stock the most advanced, highest quality bearings, completely machined and finished, at low cost anywhere in America.

. . . where to get them

Your Bunting distributor is listed in the classified section of your telephone directory usually under Bars — Bronze, and Bearings — Bronze. Two Bunting factories and eleven Bunting Branch Warehouses expedite distribution in all areas. Ask your local Bunting distributor or write for catalogs.

. . . made to blueprint

Bunting offers unmatched engineering and manufacturing facilities for special bearings and parts of Cast Bronze and Sintered Oil-filled Metals.

The Bunting Brass and Bronze Company
Toledo 1, Ohio EVergreen 2-3451

. . . ask or write for your copy of . . .

Bunting's "Engineering Handbook on Powder Metallurgy" details manufacture and use of sintered metal bearings and parts.

CATALOG NO. 58 listing...866 sizes of Bunting Cast Bronze Standard Stock Bearings.

667 sizes of Bunting Sintered oil-filled Bronze Stock Plain, Flange and Thrust Bearings. Made to ASTM Standards.

267 sizes of Bunting Cast Bronze Tubular and Solid 13" Bars.

84 sizes of Bunting Sintered oil-filled Bronze Tubular and Solid 6½" Bars.

BAR CARD 40 listing . . . 138 sizes of Bunting Bearing Aluminum 13" Bars.

CATALOG NO. 258 listing...343 sizes of Electric Motor Bearings for all makes and sizes of electric motors from 1/50 to 100 HP.

Bunting®

BEARINGS, BUSHINGS, BARS AND SPECIAL PARTS OF CAST BRONZE OR SINTERED METALS. ALCOA® ALUMINUM BARS.

For More Information Write No. 222 on Inquiry Card—Page 32

Questions from the floor

Are you getting most floor absorbent bulk (not weight!) for your money?

Does your floor absorbent become saturated before it does its job?

Does your floor absorbent create new hazards by absorbing light, thus reducing needed working light?

Does your floor absorbent "mud up" with oil and water?

THERE'S A TEST THAT ANSWERS ALL THESE QUESTIONS

In less than 15 minutes in your own office, you can get all the right answers scientifically. Our Eagle-Picher representative will bring a miniature laboratory right to your desk. Compare Eagle-Picher Floor-Dry with any other floor absorbent. See which wins out on overall economy and full-range safety. Eagle-Picher is eager to face comparative tests. Write today.

Since 1843

EAGLE PICHER

EAGLE-PICHER

The Eagle-Picher Company
Cincinnati 1, Ohio

For More Information Write No. 223 on Inquiry Card—Page 32

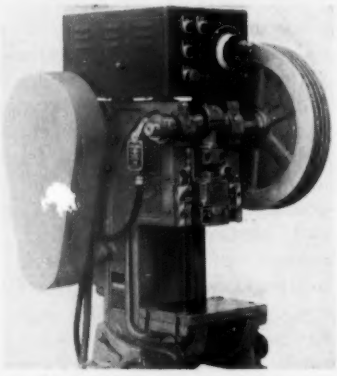
Products

(*Continued from page* 113)

steel pipe is now on the market. Lightweight conduit can be laid by one person at the ditch in sizes up to 30 feet in length. Solvent-welded connections are made at the site by applying a thin layer of cement with a brush. Each tier is laid separately, and a thin layer of cement is poured over it to eliminate need for separators. Plastic material is said to be impervious to water and therefore to rust and rot. Marketed under the name of "Dur-X Conduit," new product is manufactured in two, three, and four in. sizes by Franklin Plastics, Inc., Franklin, Pennsylvania.

Write No. 29 on Inquiry Card—Page 32

Safety Stressed in New Punch Press



A new 8-ton punch press. In single-trip operation, two widely separated hand controls must be depressed and held down until ram reaches bottom of stroke, guaranteeing hand-safety. High-starting torque motor delivers power directly to the crankshaft, eliminating flywheel-in-motion and clutching mechanism hazards. In single-trip work, motor goes dead after every cycle, so dangerous double-tripping cannot occur. If power fails or is disconnected, heavy-duty brake is applied automatically, and press can also be stopped instantly at any point in stroke cycle by easily reached stop button. Kenco Manufacturing Co., 5211 Telegraph Road, Los Angeles 22, California.

Write No. 30 on Inquiry Card—Page 32

For More Information Write No. 224 on Inquiry Card—Page 32→

Statistical quality control—from raw material to finished product

Complete technical data

Widest line—50 ring types, 13 finishes, 6 metal specifications

Application tools for faster assembly on the production line

Precision ring production on one of the world's newest, fastest presses . . . at 1000 strokes a minute

Design help: Fred Wellman, Truarc Field Engineer, discusses design problem on new turbo supercharger with, left to right, purchasing man, Harold Pogue, and Project engineer, W. C. Beier, of Schwitzer Corp., Indianapolis, and Truarc distributor, Mel Seitz, Service Supply Co.

PURCHASING VIEWPOINT: Waldes Truarc Retaining Rings will be recommended by your design men to save on materials, machining and labor. Here are some of the additional points you are concerned with. They add up to lower *installed* costs for you with Waldes Truarc Rings. Send for our new catalog RR 10-58.

©1959 WALDES KOHINOOR, INC. 9.3

WALDES TRUARC® RETAINING RINGS

WALDES KOHINOOR, INC., 47-16 Austel Place, Long Island City 1, N. Y.

TRUARC RETAINING RINGS . . . THE ENGINEERED FASTENING METHOD FOR REDUCING MATERIAL, MACHINING AND ASSEMBLY COSTS

THE BIGGEST, NEWEST IDEA IN INDUSTRIAL GLOVES!

PROTECTION NORTH AT ALL POINTS · PVC Gloves by Jomac, job-proved for extra safety, extra wear

Check these advantages . . .

- **Extremely tough**—Last two to five times longer than ordinary industrial gloves
- **Very flexible**—Give greater dexterity than any other coated gloves. Made in sizes for maximum comfort
- **Highly resistant**—Nonflammable, nonoxidizing and resistant to practically all chemicals —will not crack or peel

Give your employees the maximum protection afforded by North PVC Gloves. There is a size to fit every hand—fit it comfortably, and in this way lessen fatigue and increase efficiency. You will find production going up, accident rate going down. Available in knit-wrist, band top and gauntlet types—palm and partial back coated styles.

FREE OFFER—On your business letterhead, kindly furnish details of your working conditions—and we will send you a sample pair.

We also make a complete line of North PVC chemical and foul weather protective garments and the famous Jomac loop-pile industrial gloves, handguards and safety sleeves for hand-to-shoulder protection.

1600 SERIES. Fully coated, heavy duty.

1800 SERIES. North-Grip—Permruff surface; for handling slippery surfaces.

JOMAC *Inc.*

Dept. F, Philadelphia 38, Pa.

Associated companies and distributors throughout the world

For More Information Write No. 225 on Inquiry Card—Page 32

Products

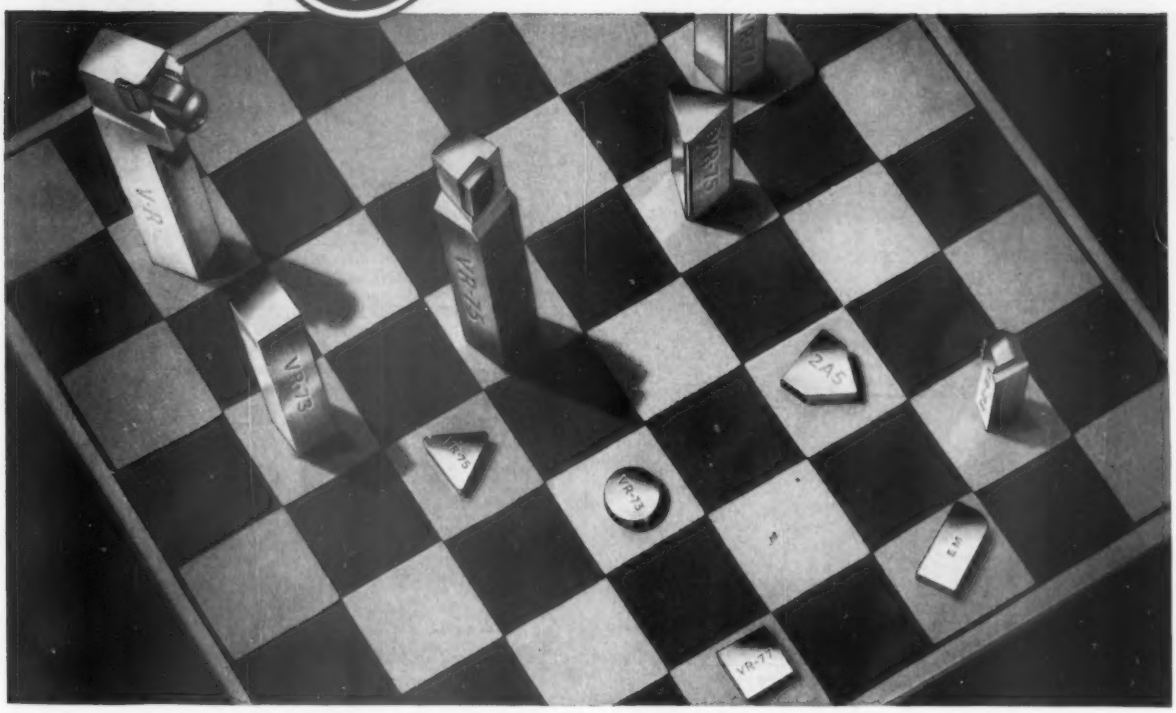
New Features on Lever Hoist

Two new features have been added to all Thern lever hoists. New lever bars and handles are said to increase strength and ease of operation. Bar also adds sideways rigidity to the handle, which prevents damage if handle is accidentally pulled sideways. Safety feature is built into the tubular handle which bends under severe overloading. A new control is conveniently located, can be turned easily, and gives quick control. Hoists have large bearings, heavy aluminum blocks with malleable hooks, operate horizontally, vertically, or at an angle, and are available in ½, ¾, 1 and 1-½ ton capacity. Standard lift is 5 feet, but other lifts can be supplied. Thern Machine Co., Winona, Minnesota.

Write No. 31 on Inquiry Card—Page 32

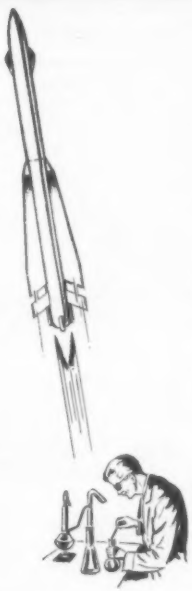
"You'll find purchasing's a snap if you can please everybody. . ."

V-R Carbides



Metals of Tomorrow . . . Today!

Vascoloy-Ramet Corporation is a pioneer manufacturer of refractory metals . . . making its contribution to America's growth by developing special metals with exceptional characteristics to meet the changing needs of industry. 29 years of V-R research, engineering and manufacturing experience have produced the technical know-how built into all V-R products. This same know-how is working full time, developing new refractory metals, to meet tomorrow's needs.



give you the jump on solving tooling problems

V-R Production Engineers have worked with thousands of machining applications and developed carbides for maximum cutting efficiency on practically any type of job. Your V-R representative will be glad to show you how this cutting tool know-how can give you the jump on tooling problems in your plant.
Solving tooling problems is often a simple matter of fitting the right carbide to the job. That's why so many purchasing executives call in their V-R representatives whenever new tooling needs arise . . . they know that V-R can fill their needs before they become problems.

Vascoloy-Ramet corporation

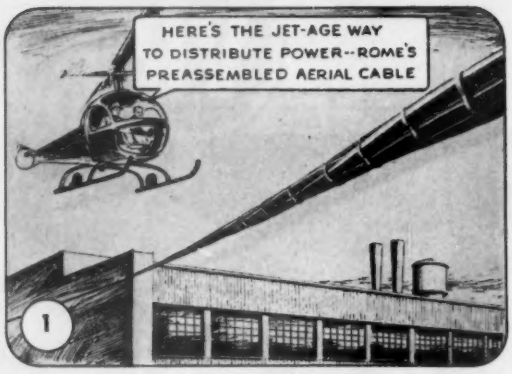
PRIME MANUFACTURERS OF REFRACTORY METALS ENGINEERED FOR THE JOB

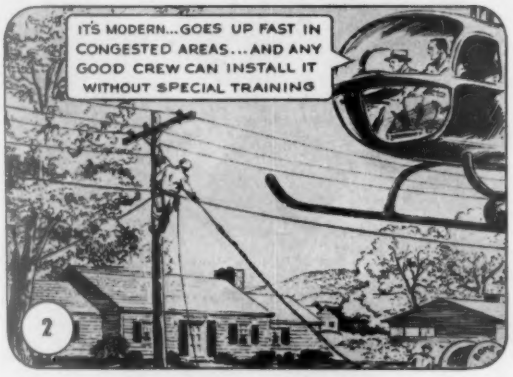
C-738

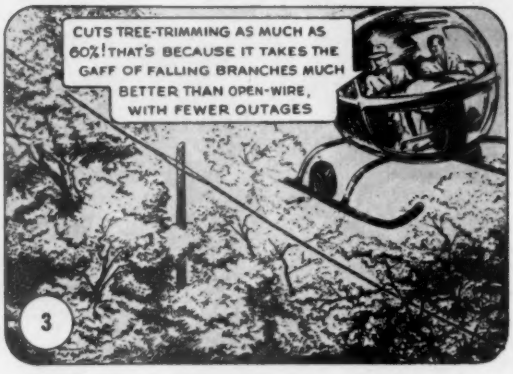
846 Market Street Waukegan, Illinois

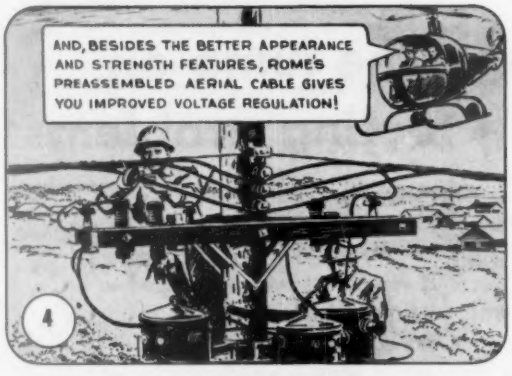
For More Information Write No. 226 on Inquiry Card—Page 32

WHAT'S UP IN AERIAL POWER?

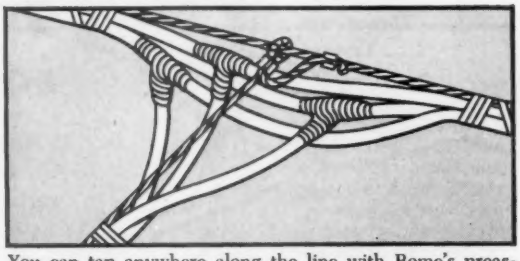




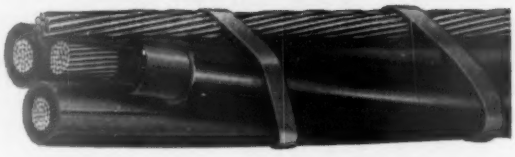

CUTS TREE-TRIMMING AS MUCH AS 60%! THAT'S BECAUSE IT TAKES THE GAFF OF FALLING BRANCHES MUCH BETTER THAN OPEN-WIRE, WITH FEWER OUTAGES
3


AND, BESIDES THE BETTER APPEARANCE AND STRENGTH FEATURES, ROME'S PREASSEMBLED AERIAL CABLE GIVES YOU IMPROVED VOLTAGE REGULATION!
4

A matter of FACT



You can tap anywhere along the line with Rome's preassembled aerial cable. Lay of the conductors is reversed every five feet to provide slack for easiest tapping even when line is hot.



For service to 15 kv You get your choice of two premium ozone-resistant insulations when you specify Rome's aerial cable: Rozone (oil-base) or Rozone A (butyl-base). Rome is one of the few suppliers offering you this important latitude in cable selection. For complete information, contact your nearest Rome Cable salesman.

ROME CABLE

MEET THE MAN

WHO'S DEDICATED TO YOUR JOB

YOUR ROME CABLE SALESMAN

ROME CABLE Department 145
Rome, New York

☐ Please send me more information on the above.

☐ I want to "Meet The Man" who can tell me more.

Name.....

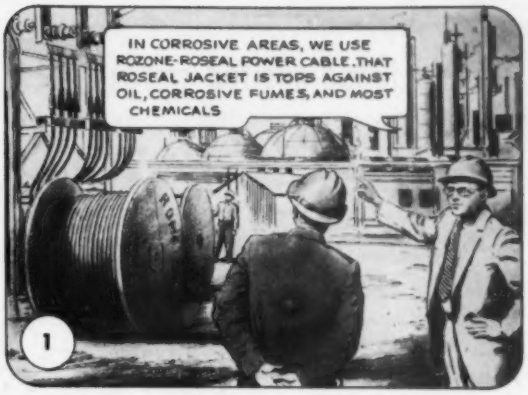
Title.....

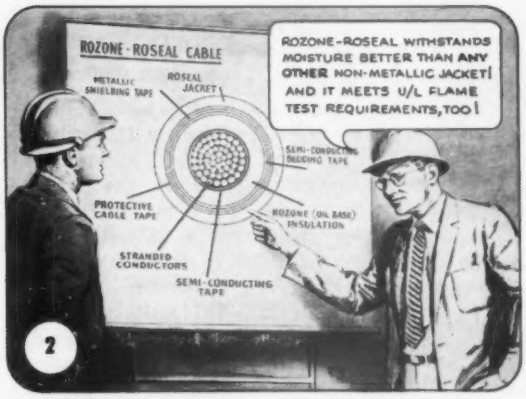
Company.....

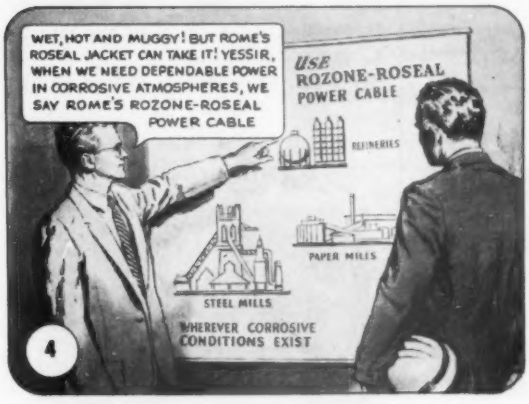
Street.....

City.....Zone.....State.....

DANGER! CORROSION AT WORK...


IN CORROSIVE AREAS, WE USE ROZONE-ROSEAL POWER CABLE. THAT ROSEAL JACKET IS TOPS AGAINST OIL, CORROSIVE FUMES, AND MOST CHEMICALS
1




WET, HOT AND MUGGY! BUT ROME'S ROSEAL JACKET CAN TAKE IT! YESSIR, WHEN WE NEED DEPENDABLE POWER IN CORROSIVE ATMOSPHERES, WE SAY ROME'S ROZONE-ROSEAL POWER CABLE
USE ROZONE-ROSEAL POWER CABLE
REFINERIES
PAPER MILLS
STEEL MILLS
WHEREVER CORROSIVE CONDITIONS EXIST
4

Available in voltage ranges through 15 kv Rozone-Roseal preferred power cable may be installed in air, conduit, underground ducts, or directly in earth. Your choice of premium ozone-resistant insulations: Rozone (oil-base) or Rozone A (butyl-base). For complete information, contact your nearest Rome Cable representative and ask for Bulletin RCD-700. Or mail the coupon today.

ROME CABLE
CORPORATION

A matter of FACT

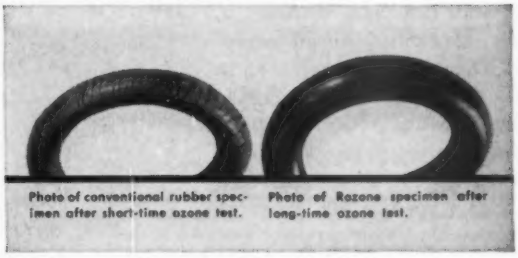


Photo of conventional rubber specimen after short-time ozone test. Photo of Rozone specimen after long-time ozone test.

Rozone insulation is high in dielectric and impulse strength and has excellent resistance to corona and ozone cutting.

FREE BULLETIN describes the benefits of Rome's preferred high-voltage power cables.

ROME CABLE CORPORATION
Department 720, Rome, New York

Please send me a copy of the new Rome Cable Bulletin RCD-700.

Name .....

Title .....

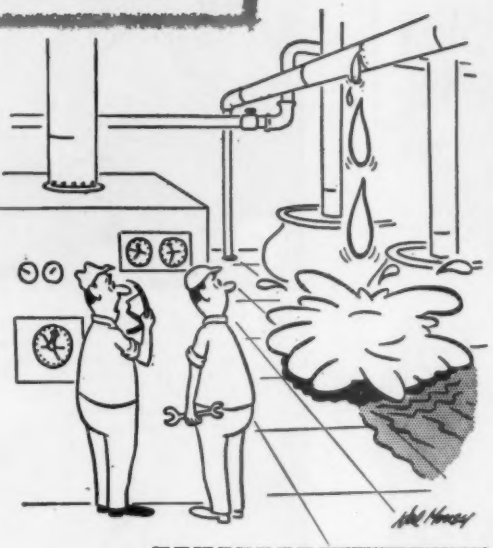
Company .....

Address .....

.....

Type of business .....

Life in these excited states...



"I can't stand that constant drip-drip-drip!"

Corrosion got the drop on you?

Little drips can mean big losses... repairs, downtime, ruined equipment. You can put an end to 85 to 100% of these problems with Ace chemical-resistant rubber and plastic piping, valves, pumps, tanks and other equipment. American Hard Rubber Company's 108 years of experience is at your service.

RIVICLOR *for ageless strength*

All-purpose rigid PVC. Sched. 40, 80 & 120, ½ to 4". Threaded or socket-weld fittings. Valves ½ to 2". NSF-approved. *Bul. CE-56.*

NEW *ACE Gear Pump*

Improved design . . . now 12 gpm. All wetted parts acid-resistant, wear-resistant Ace hard rubber. Finest available. *Bul. CE-55.*

SUPPLEX *tops in economy*

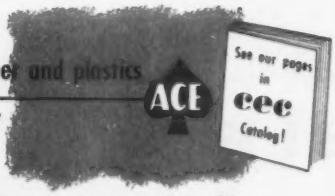
Flexible poly pipe, ideal for water lines, drains, underground pipe or conduit. Sizes ½ to 2", long coils, NSF-approved for drinking water. *Bul. CE-57.*

VALVE HEADQUARTERS

World's best chemical valves . . . at moderate prices. All-plastic, rubber-lined, or all-hard-rubber. ⅛" pet cocks to 24" gate valves.

ACE processing equipment of rubber and plastics

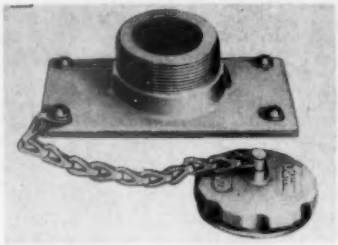
AMERICAN HARD RUBBER COMPANY
DIVISION OF AMERACE CORPORATION
Ace Road • Butler, New Jersey



For More Information Write No. 228 on Inquiry Card—Page 32

Products

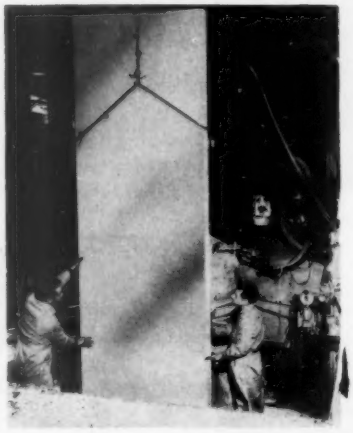
Three U-Shaped Ground Receptacles



Three new U-shaped ground receptacles in two electrical ratings are being made by the Pyle-National Co. for use with FS and FD series Pylet boxes. One model is general duty, the second weather-tight, and the third water-tight. Receptacles are two-wire, three-pole units with third pole grounded to conform to electrical code requirements. Ratings are 15 amps-125 volts, and 15 amps-250 volts. Rubber-covered, water-tight plugs with threaded clamp nut are available for water-tight receptacles. Pyle-National Company, 1334 N. Kostner Ave., Chicago 51, Illinois.

Write No. 32 on Inquiry Card—Page 32

Improved Aluminum Tooling Plate

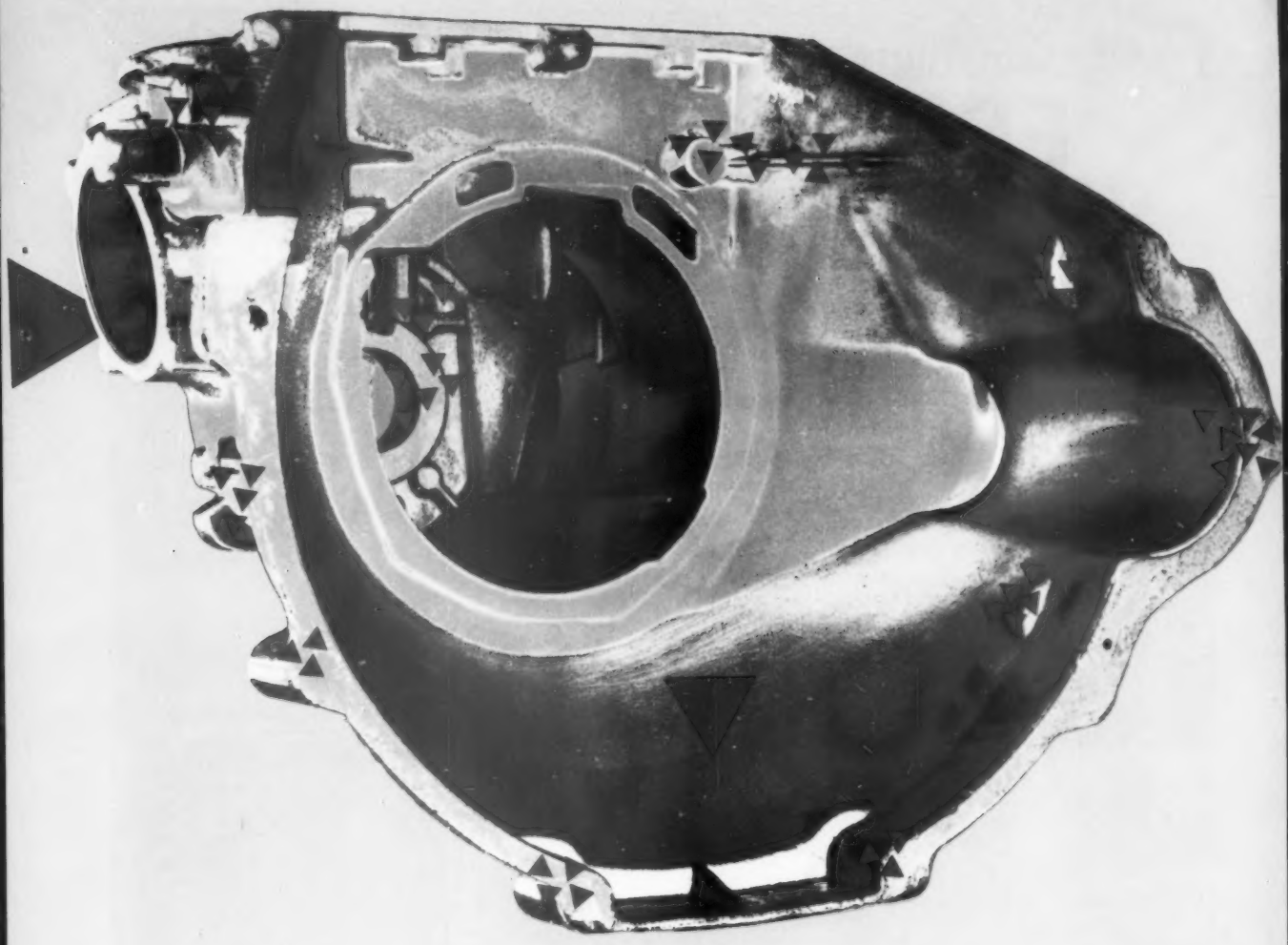


An aluminum tooling plate which is direct-chilled during casting for greater density and stability has a fine-grain, uniform molecular structure with improved mechanical properties and machineability. High degree of

(*Please turn to page* 122)

For More Information Write No. 229 on Inquiry Card—Page 32→

PURCHASING



in castings...

Alcoa puts the metal where you want it

The design areas in this permanent-mold casting are pegged in red. The part itself is an automatic transmission housing for the '59 Ford car. It weighs 24 lb, 61 lb less than its cast-iron predecessor. The cyclone forces that whirl through modern automatic transmissions bring stress ranges in some parts of the casting up to 21,000 psi. The problem was to provide adequate strength without unnecessary weight in the casting walls.

Alcoa was not only able to offer a complete test facility, but was able to offer some sound design tips, too. Stresscoat and strain gage tests revealed the areas where special design attention was necessary. We were able to produce the parts to meet the exacting production schedule of the automotive industry.

In castings as well as forgings, screw machine parts, extrusions and impacts, Alcoa puts the metal where you want it. To you, this may mean fewer rejects, or it could provide the key to ingenious solutions for difficult design problems. Start now; write for Alcoa's Up-To-Dater, a starter file of ideas and design tips on Alcoa Engineered Products. Aluminum Company of America, 917 Alcoa Building, Pittsburgh 19, Pennsylvania.

ALCOA ALUMINUM

Alcoa puts the metal where you want it — in castings, forgings, impacts, extrusions and machined parts.

For Exciting Drama Watch "Alcoa Theatre," Alternate Mondays, NBC-TV, and "Alcoa Presents," Every Tuesday, ABC-TV

"STRESS AREAS"

Can These

FELT

BY FELTERS

IDEAS

Help You
Save Money?

FELT GREATLY REDUCES GLAZING COSTS

over conventional brushing. Fine china manufacturer uses special Felters DuFelt Polishing Belt to reduce glazing costs. Felt coarseness and density can be varied for most effective polishing of metal, glass and ceramics. Can also be coated with abrasives.

FELT ADHESIVE TAPES AND PADS

are the most inexpensive material for sealing, padding and cushioning. Felt strips seal out dust, dirt, wind, fumes, moisture, and eliminate squeaks and rattles.

FELT AS A LOW COST FRICTION MATERIAL

Used as a braking or friction device, sometimes combined as a seal or washer. High coefficient of friction and extra density provide foolproof clutching and tension action at low cost, like the Lever Puller shown at left.

To get the most out of Felt, send for the Felters Design Book — a complete digest on properties and applications. Write, today.

Ask for **FELT** *from . . .*

The **FELTERS** Co.

239 SOUTH STREET
BOSTON 11, MASSACHUSETTS

Pioneer Producers of Felt and Synthetic Non-Woven Fabrics F2 9-16

For More Information Write No. 230 on Inquiry Card—Page 32

Products

(*Continued from page* 120)

surface finish (32 micro) usually makes additional machining unnecessary. The corrosion-resistant aluminum alloy can be used for finished precision products, as well as in many applications in tooling for all metal-working industries. Standard thickness tolerance is plus or minus .010, and standard flatness tolerance ¾ in. thickness or over is plus or minus .005. Made in standard and special sizes up to 60 in. by 192 in., from ¼ in. to 24 in. in thickness. Alloy is weldable, easily screwed, tapped and milled, and non-sparking alloy allows speeds up to 6000 FPM in turning milling and drilling. Pioneer Aluminum Inc., 5251 West Imperial Highway, Los Angeles 45, California.

Write No. 33 on Inquiry Card—Page 32

Reinforced Jar Has Strength, Long Life

An alumina-reinforced ceramic body gives added strength to "Lumard" jars, said to outlast regular porcelain jars three to one. Metal handles cemented on cover have finger hold for easy handling. Steel neckbands reduce danger of cracking when cover is tightened. Separate crossbar makes cover cleaning easier. Handwheel in place of thumb nut eliminates need for wrench or pliers in sealing cover. Available in sizes from five quarts up to fifty-seven gallons, manufactured by Paul O. Abbé, Inc., 405 Center Avenue, Little Falls, New Jersey.

Write No. 34 on Inquiry Card—Page 32

SEND THIS COUPON TODAY

The American Brass Co., Fabricated Metal Goods Div.
Waterbury 20-A, Connecticut

Please send me a copy of Publication BG-5

Name.....

Company.....

Street.....

City..... Zone..... State.....

ANACONDA

Fabricated Metal Products

COPPER

BRASS

BRONZE

NICKEL SILVER

IRON

STEEL

STAINLESS STEEL

ALUMINUM

THE AMERICAN BRASS COMPANY · FABRICATED METAL GOODS DIVISION, WATERBURY 20, CONN.

COST-CUTTING IDEAS THAT PAID OFF

All the parts shown on the cover of the booklet were designed to serve a specific function—at a lower cost. Some of them are made from customer-owned tools, specially designed to make a better part at a saving in material cost and fabricating time. They illustrate only a few of the thousands of multiple-plunger and progressive-tool press products we supply to every branch of industry—from simple eyelets to precision electronic components.

We offer a complete design-engineering service based on long experience and specialized production equipment, and often are able to suggest ways and means of using some of our many stock tools to cut your costs still further.

Perhaps we can develop cost-cutting ideas for you, too. The booklet describes and illustrates the range and types of parts we fabricate. A sample, drawing or description of a part you need to produce at a low cost will give our designers a chance to work on your cost problems—at no obligation to you.

6/9258

ANACONDA®

MULTIPLE-PLUNGER PRESS PRODUCTS

For More Information Write No. 231 on Inquiry Card—Page 32

Panelyte
LAMINATED SHEET, TUBE & ROD
is as near as your telephone!

A wide range of NEMA and military grade laminates—copper-clad, as well as sheet, tube and rod in a variety of shapes and sizes—is available in St. Regis PANELYTE. A nationwide network of distributors and fabricators backed by St. Regis warehouses gives you the fastest service you ever saw!

St. Regis has complete stocks of PANELYTE in Trenton, Chicago, Denver, Seattle, San Francisco and Los Angeles—near enough to provide overnight service to practically any location.

Every grade of PANELYTE is being steadily improved by continuing St. Regis research. And there's a PANELYTE grade for every purpose—high dielectric strength, low moisture absorption, minimum cold flow under high humidity conditions and excellent machining characteristics.

Next time you need laminated plastics in NEMA or military grades—pick up your phone and call the St. Regis source of supply nearest you. Or write now for complete details and specifications: PANELYTE Division, Box P-559, St. Regis Paper Company, 150 East 42nd Street, New York 17, N. Y.

PANELYTE DIVISION **St.Regis** PAPER COMPANY

For More Information Write No. 232 on Inquiry Card—Page 32

—and here's where to call the PANELYTE distributor nearest you!

ALABAMA
*Marine Specialty Company
Mobile, Alabama

ARIZONA
Electrical Specialty Company
Phoenix, Arizona

CALIFORNIA
Cadillac Plastics
Los Angeles, California
Electrical Specialty Company
Los Angeles, California
Cadillac Plastics
San Francisco, California
Electrical Specialty Company
San Francisco, California

COLORADO
Electrical Specialty Company
Denver, Colorado
*Regal Plastic Supply
Englewood, Colorado

CONNECTICUT
Modern Plastic & Glass Company
Bridgeport, Connecticut
*New England Non Metallics Co., Inc.
Milford, Connecticut
Industrial Safety Supply
W. Hartford, Connecticut

DELAWARE
Brandywine Fibre Company
Wilmington, Delaware
Kaufman Glass Company
Wilmington, Delaware

FLORIDA
Commercial Plastics
Miami, Florida

GEORGIA
AAA Brands Plastic Supply Co.
Atlanta, Georgia

ILLINOIS
Cadillac Plastics
Chicago, Illinois
Colonial Kolonite
Chicago, Illinois
Insulating Manufacturing Corp.
Chicago, Illinois

INDIANA
*Hyaline Corporation
Indianapolis, Indiana

KANSAS
The Henry Company
Wichita, Kansas

LOUISIANA
Drake-Thompson and Company
New Orleans, Louisiana

MARYLAND
Gilbert Plastics and Supply Company
Baltimore, Maryland

MASSACHUSETTS
Plastic Supply Co. (Hub Stamping)
Boston, Massachusetts
*Insulation Products Company
Chicopee, Massachusetts
H&P Spool & Bobbin Company
Lawrence, Massachusetts
*Laminated Sheet Products
Norwood, Massachusetts

MICHIGAN
Cadillac Plastics
Detroit, Michigan

MINNESOTA
Arrowhead Plastics
Minneapolis, Minnesota
Service Tool & Engineering
Minneapolis, Minnesota

MISSOURI
Cadillac Plastics
Kansas City, Missouri
Plastic Sales
Kansas City, Missouri
Cadillac Plastics
St. Louis, Missouri

NEW JERSEY
*Insulating Fabricators, Inc.
East Rutherford, New Jersey
Allied Plastics Supply Corporation
Elizabeth, New Jersey
*Insulating Specialties, Incorporated
Hillside, New Jersey
Kennedy Lumber Company
Trenton, New Jersey
*Rummel Fibre Company
Union, New Jersey

NEW MEXICO
*Jay-Grear, Incorporated
Albuquerque, New Mexico

NEW YORK
*T. J. Long, Incorporated
Carle Place, New York
*Aircraft Specialties Company, Inc.
Hicksville, New York
Allied Plastics Supply Corporation
New York City, New York
Commercial Plastics
New York City, New York
*Comco Plastics
Ozone Park, New York
The Plastic Center
Rochester, New York
*The Frank Products Corporation
Westbury, New York

NORTH CAROLINA
*Engineered Plastics, Incorporated
Gibsonville, North Carolina

OHIO
Cadillac Plastics
Cincinnati, Ohio
Cadillac Plastics
Cleveland, Ohio
Dayton Plastics, Incorporated
Columbus, Ohio
Dayton Plastics, Incorporated
Dayton, Ohio

OKLAHOMA
Denton's Glass & Plastics
Oklahoma City, Oklahoma

OREGON
Electrical Specialty Company
Portland, Oregon

PENNSYLVANIA
Commercial Plastics
Philadelphia, Pennsylvania
*Herschel Engineering & Supply Co.
Philadelphia, Pennsylvania
Commercial Plastics
Pittsburgh, Pennsylvania

TEXAS
A&A Supply Company
Dallas, Texas
Cadillac Plastics
Dallas, Texas
Cadillac Plastics
Houston, Texas

WASHINGTON
Electrical Specialty Company
Seattle, Washington

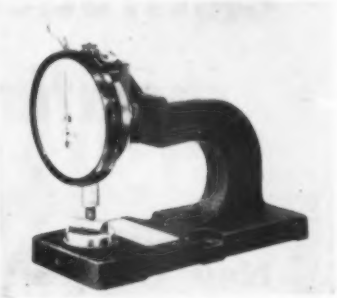
WISCONSIN
Rahrs Engineering
Manitowoc, Wisconsin
Cadillac Plastics
Milwaukee, Wisconsin

***Distributor-Fabricators who can give special attention to your fabrication needs.**

PANELYTE DIVISION **St.Regis** PAPER COMPANY
150 EAST 42ND STREET, NEW YORK 17, N. Y.

Products

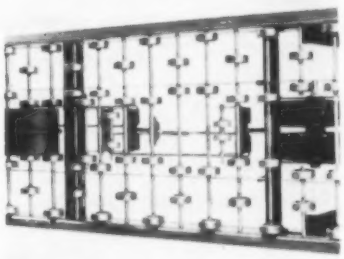
Lightweight Comparator for Versatile Gaging



A small, lightweight comparator now available is ideal for portable, on-the-spot checking anywhere in the shop. In addition, it makes a handy second comparator for the bench. Well suited for checking compressible materials such as leather, textiles, rubber, etc., with a weighted indicator. Measuring capacities—0 to 1⅜ in., depending on size indicator used. Clearance, contact to throat —3-1/3 in. Anvil—1 in. diameter. Cast aluminum base is rugged though light and has two countersunk holes for easy mounting. Petz-Emery, Inc., Pleasant Valley, New York.

Write No. 35 on Inquiry Card—Page 32

Pressure-Sensing Wheel Conveyor



Adjustable pressure control is the feature of a new pressure-sensing conveyor. Performing the functions of accumulation and transportation, unit is basically a regular wheel conveyor equipped with a 4-inch rubber belt which provides power and replaces usual center load-bearing wheels. Adjustable pressure control means that conveyor can be tailored to

(*Please turn to page 126*)

Now—an improved electrocleaner with *chelating action*

New Oakite 190 strips smut faster, cuts plating rejects

This new product of the Oakite Laboratories is a great step forward in reverse current cleaning. By chelating action, it insures faster removal of smut, fingerprints, light rust bloom and, under certain conditions, even light oxides.

It's such a superior cleaner that in some cases a number of pre-cleaning steps have been eliminated entirely . . . and with reduced plating rejects, at that.

Here's what Oakite 190, with chelating action, gives you:

High electrical conductivity
Fast wetting and emulsifying
Controlled foam blanket
Water softening action
High chromic acid tolerance
Long, economical solution life

Ask your local Oakite man about Oakite 190, or write for details to Oakite Products, Inc., 54 Rector Street, New York 6, N. Y.

SPECIALIZED INDUSTRIAL CLEANING
OAKITE
MATERIALS · METHODS · SERVICE
SCIENCE

Export Division Cable Address: Oakite

in our 50th year

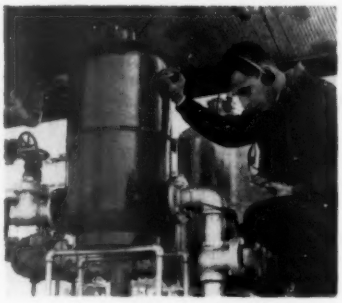
Technical Service Representatives in Principal Cities of U. S. and Canada
For More Information Write No. 233 on Inquiry Card—Page 32

Products

(*Continued from page 125*)

meet weight, size and other handling requirements of any given container by adjusting the spring-loaded pressure wheel. Long belt life and low maintenance costs are promised. Speeds may range from 65 to 100 feet per minute, with 65 feet standard. Line of containers can be stopped at any desired point by finger-tip pressure without shutting down the system, without damage to containers or buckling of the line. Rapids-Standard Co., Inc., 342 Rapistan Bldg., Grand Rapids 2, Mich.

Write No. 36 on Inquiry Card—Page 32



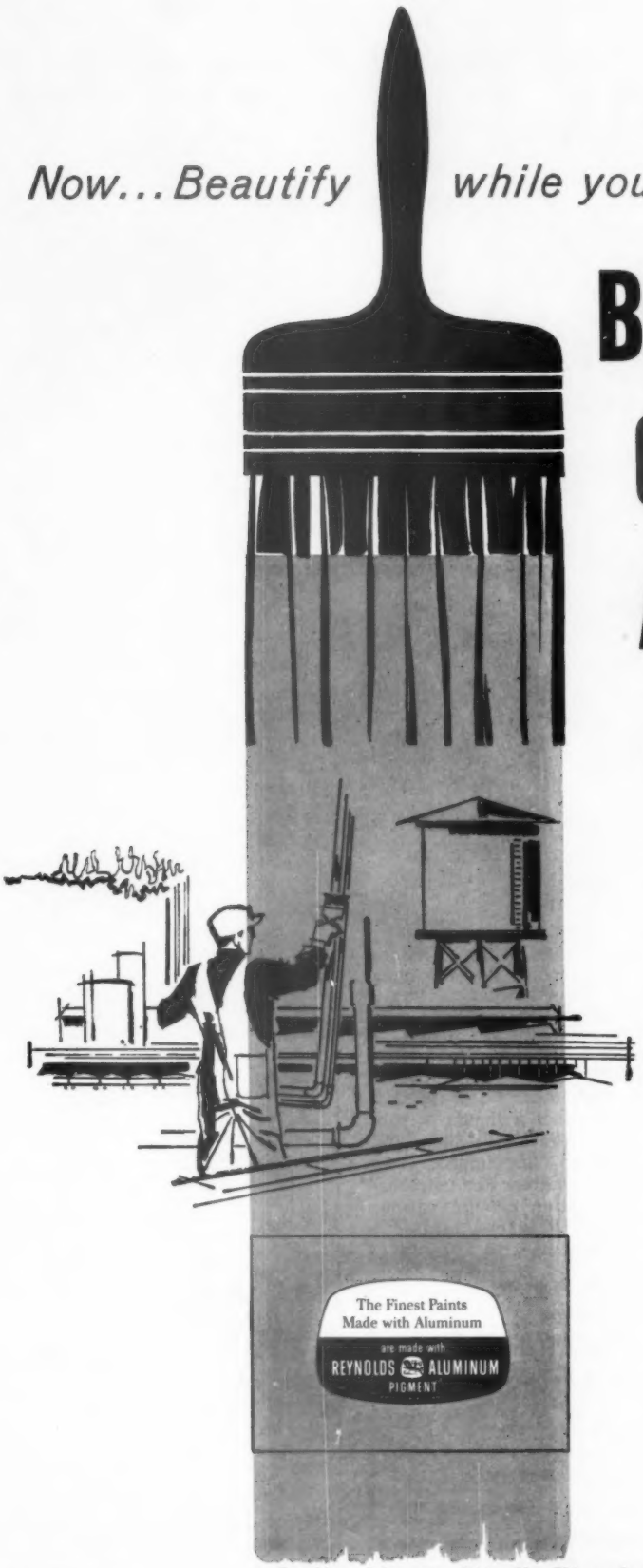
Simple, Lightweight Thickness Tester

An ultrasonic gage that weighs less than five pounds—including batteries, probe, harness, cable and earphones—is now available. Completely self-contained, gage is designed for non-destructive thickness measurement from one side of most metals, glass, ceramics and plastics. Ideal for inspection of piping, tanks, pressure vessels, bulkheads and similar equipment areas when corrosion is suspected. A principal advantage is direct reading, without conversion charts or separate calculations, which provides simplicity of operation for inexperienced personnel. Gage measures 9-¾ x 4-⅜ x 4-½ in. and is powered by 3 radio-type mercury batteries designed for 70 hours of continuous operation or 2 to 4 months of normal testing. Instrument range is 0.09 to 5.0 in. and accuracy is within 3 to 5 per cent. Branson Instruments, Inc., 40 Brown House Road, Stamford, Conn.

Write No. 37 on Inquiry Card—Page 32

Now... Beautify while you protect with

BRUSH-ON COLORED ALUMINUM PAINTS



Dazzling new colored aluminum paints and roof coatings are now offered by leading paint manufacturers using Reynolds Aluminum Pigments. These coatings *decorate* roofs, fences, masonry, tanks, fixtures and machinery —and *protect* them with a tough aluminum "shield." These eye-appealing colored aluminum coatings don't have to be sprayed on . . . an ordinary paint brush will do the job.

The new colored aluminum paints still give you all the famous aluminum advantages: heat reflectivity, insulation, corrosion resistance and protection against rust. Yet these new paints are economical to use, and are available in formulations suitable for indoor and outdoor use.

Reynolds does not make paint, but does supply the finest aluminum pigments to leading paint manufacturers. For further information and names of manufacturers, write *Reynolds Metals Company, Box 2346-PP, Richmond 18, Virginia.*

See Reynolds TV show—
"WALT DISNEY PRESENTS"
every week on **ABC-TV**

For More Information Write No. 234 on Inquiry Card—Page 32

STOP BUYING LABELS Print your own–as you need them!

Weber Label Printing Machine produces product identification or content labels when, where and as they are required. Cuts costs, eliminates label inventory problems!

No matter what volume or assortment of labels you use—shipping, product identification, carton content, box end, etc. — a portable Weber Label Printing Machine in your office or plant saves money, time and effort. Compact, typewriter size — this fully automatic machine prints, counts, cuts to the size desired, and stacks labels at the rate of 105 per minute.

With a Weber Label Printer you no longer need to buy, store and inventory large quantities of labels. It enables you to print your own as you need them. You get control and complete flexibility—print shipping labels one minute, product identification or packing slips the next. The Weber Label Printer can be adjusted in seconds to satisfy all your requirements for different sizes and varieties of labels for use in shipping, production, packing, inspection or for other departments. Prints from either a stencil or rubber mat on practically any roll stock—gummed, ungummed, linen or pressure sensitive. For more detailed information on the various Weber Label Printers, mail the coupon below.

Weber
MARKING SYSTEMS
Sales and Service in all principal cities

WEBER MARKING SYSTEMS
Dept. 22-E
Weber Industrial Park
Mount Prospect, Illinois

Please send me complete data on Weber Label Printing Machines.

Company_____

Individual_____

Position_____

Address_____

City_____ Zone____ State_____

For More Information Write No. 235 on Inquiry Card—Page 32

Products

Cleans 600 Electrical Assemblies Per Hour

Designed for assembly lines where large numbers of identical parts are cleaned on a continuous production basis, the precision parts cleaner removes oil, grease, silicone lubricants, lapping compounds, and other soluble and insoluble contaminants quickly, safely, and economically. Sensitive switches, relays, choppers, semiconductors and other precision components and assemblies can be cleaned at the rate of six hundred units an hour. Spray solvent is combined with heated and filtered air to achieve critical chemical cleanliness. Solvent is non-flammable, non-corrosive, non-polar and non-ionic; will not liberate free chlorides to promote oxidation and is completely free of all non-volatile materials. Availabe from Cobehn Inc., Caldwell, N.J.

Write No. 38 on Inquiry Card—Page 32

"Fred, I'm getting lots of complaints on that last batch of lubricant. . ."

one call from you . . . and they're on your staff!

And they'll bring with them a nearby source of Carpenter tool, stainless and alloy steels. Actually they form just one station in a network that has built itself into a large chain of service-centers by offering and delivering the steels you need when you need them. Make that one action-getting call now. It will pay off in new operating flexibility for you. Just like having a complete warehouse in your own plant. The Carpenter Steel Company, 182 W. Bern Street, Reading, Pa.

Carpenter STEEL

mill-branch warehouse service

mill-branch warehouses, offices and distributors in principal U. S. cities consult your local telephone directory

For More Information Write No. 236 on Inquiry Card—Page 32

BRILLIANT—your idea to close all our containers with Bostitch stapling. Amazing cost savings. Marvelous advantages.
Part of the job, J. B.
(Must remember to thank the Bostitch Economy Man)

An Economy Man can show you how to seal practically any shape corrugated container better and faster with Bostitch staplers and staples.

He'll show you the versatility of stapling. Bostitch equipment can frequently be adapted for use with unusual shapes or constructions. (One Economy Man helped a manufacturer cut costs with stapled cartons for 14-foot boats!)

He'll show you how stapling can make your shipping cartons stronger, if you now use tape or glue. He can help you overcome problems of humidity, temperature, perishable contents, the need to open and reseal and many others.

There are big savings buried in many shipping rooms. Economy Men are trained to find savings in time, labor and materials. They'll show how these become additional profit when you switch to Bostitch stapling.

350 Bostitch Economy Men work out of 123 U. S. and Canadian cities. Call one in to talk over your container fastening. He's listed under "Bostitch" in your phone book.

Fasten it better and faster with

BOSTITCH®
STAPLERS AND STAPLES

725 BRIGGS DRIVE, EAST GREENWICH, RHODE ISLAND

For More Information Write No. 237 on Inquiry Card—Page 32

LOOK *for improvements in industrial handcleaners*

A NEW WAY to clean working hands

There has never been such a combination of *plus* features to keep workers' hands healthy—and therefore on the job day after day!

It's a brand new scientific formulation — non-depleting Lan-O-Kleen *PLUS*.

It's WEST'S famous Lan-O-Kleen handcleaner . . . *plus* a softer scrubbing action . . . *plus* a gentler sudsing action . . . *plus* a soothing lanolin action!

All of which combine to combat the depletion of natural skin oils while hands are being washed clean.

Highly important is the exclusive process that keeps the rich lanolin content of Lan-O-Kleen *PLUS* "free" to soothe and soften. Lanolin is impregnated into a corn meal base, instead of being "held" in the soap by conventional methods. In this way, it is instantly released for more positive, beneficial action.

Lan-O-Kleen *PLUS* is dispensed from a patented, precision-action unit. A clog-proof measuring valve with a mechanical agitator delivers a thrifty, yet adequate individual portion. More than 435 pairs of hands can be washed with each dispenser filling.

FREE TRIAL OFFER. We'd be glad to send five pounds of Lan-O-Kleen *PLUS* and loan a dispenser for free trial. Or we'll send a smaller sample for evaluation. Just call your local WEST office. Or mail the coupon to our Long Island City Headquarters, Dept. 15.

☐ Supply a dispenser and 5 lbs. of Lan-O-Kleen *PLUS*.
☐ Send a small sample of Lan-O-Kleen *PLUS*.

Name_____

Position_____

PROGRAMS AND SPECIALTIES
FOR PROTECTIVE SANITATION
AND PREVENTIVE MAINTENANCE

WEST CHEMICAL PRODUCTS INC.

WEST DISINFECTING DIVISION

WEST CHEMICAL PRODUCTS INC.
42-16 West Street, Long Island City 1, New York
Branches in principal cities
CANADA: 5621-23 Casgrain Avenue, Montreal

For More Information Write No. 238 on Inquiry Card—Page 32

Teaching Old Forms New Tricks

THE NEED for efficiency and convenience in office work is so great today that purchasing agents must take a second and even third look at all forms.

The search must be unrelenting in order to reduce the overwhelming mass of paperwork enveloping today's purchasing systems. The Spot Carbon Products Company, 54 Lafayette St., New York, N. Y. have combined their forms knowledge with technical know-how and are producing forms whose variability seem limitless.

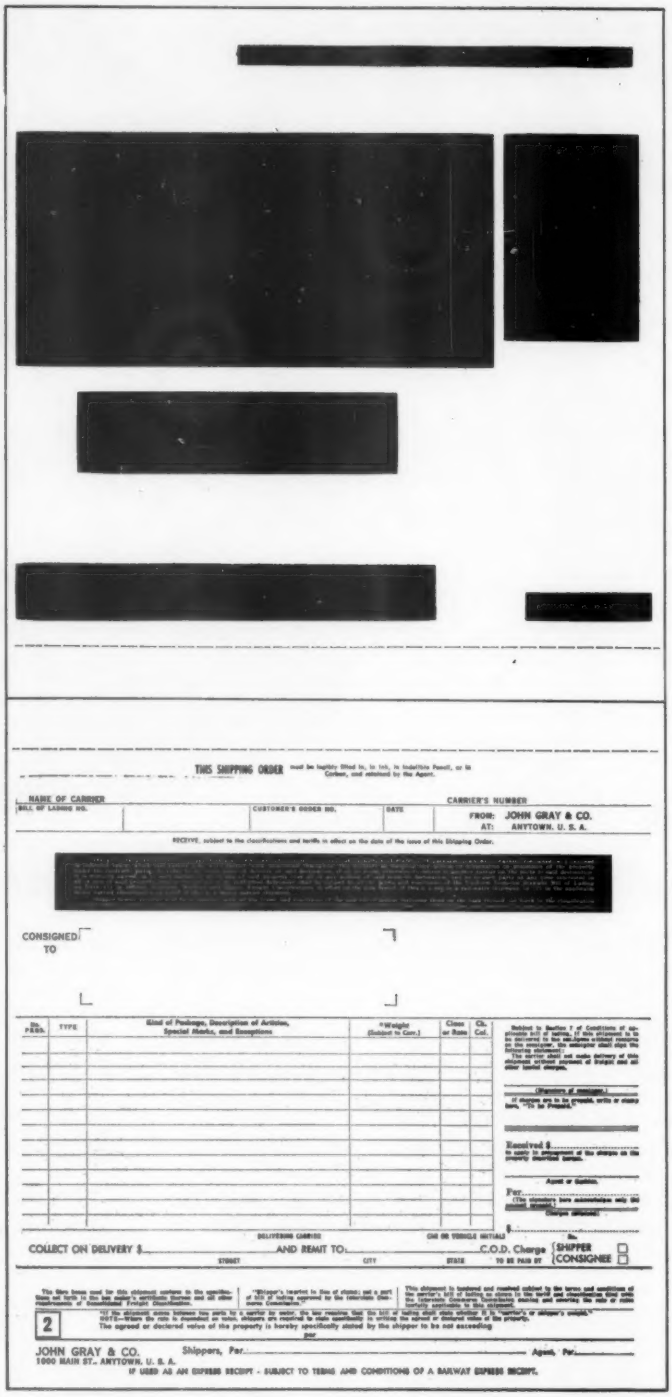
Probably most oftened used in connection with requests for quotation, the spot carbon method might be advantageously used in many other areas; in and outside the purchasing department.

Spot carbonization is the application of hot wax carbons by electronic methods in predetermined areas and shapes. This is applied to the backs of single or multiple forms sets.

When the top form is filled in, only the desired writing is transfered to the forms underneath. The information that is carbon copied can vary from sheet throughout the set. Generally, any type of form-set, up to 12 parts, can be made in this way.

Some of the additional advantages of spot carbonizing are:

- Eliminates the necessity for inserting carbon sheets by hand between the parts of a form-set.
- Eliminates the one-time carbon interleaving of form-sets.
- Automatically edits and eliminates information as required from the carbon copies, leaving only selected pertinent material in exactly the correct places.



Spot carbonizing permits the accurate selection of information to be transferred. In the illustration, the top half shows placement of the carbon spots on the first sheet, while the bottom shows the second sheet. The spots can vary from sheet to sheet if desirable.

For your company . . . big company efficiency and control

Edgar A. Wells-Castillo, Executive Vice-President, Celsa Corporation of America.

"Moore Continuous Statements save us time and money . . . give us faster end-of-the-month billing"

Celsa Corporation of America, pioneer in contemporary design in sterling silver, handles all United States billing from its New York office. This means statements to over 2000 accounts, quality jewelry and department stores in many American cities.

Using Moore Continuous Statements, one girl can handle this flow of paperwork in less than two full working days. The form is typed as a long single unit, eliminating the waste motion and irritation of inserting over 2000 separate forms, aligning them and adjusting the machine. The girl who does the job is happier, and Mr. Wells-Castillo, Executive Vice-President, is happier, too. He says, "We can get our statements out faster, with fewer mistakes. Moore forms have given me greater control of our billing."

There are Moore forms of all sorts, system-designed by the Moore men for every form of business. They can help you get the control you need in any key operation: Buying, Receiving, Stockkeeping, Production, Selling, Delivery, Billing, Collecting and Disbursing. Whatever the size of your business, the Moore man can help you speed your paperwork for better control. Look him up in the Yellow Pages of your telephone book, or call the Moore office nearest you.

Moore Business Forms, Inc., Niagara Falls, N. Y.; Denton, Texas; Emeryville, Calif. *Over 300 offices and factories throughout the U. S., Canada, Mexico, Cuba, Caribbean and Central America.*

MOORE

Build control with

MOORE BUSINESS FORMS

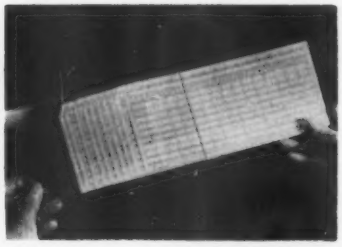
Office Equipment

A forms burster capable of trimming up to 12 plies of fastened control punched forms has been announced by **Uarco Incorporated, Chicago, Ill.** The new unit trims and bursts continuous forms 3 to 17 inches in length at 90 feet per minute. Trimming is accomplished by two large shearing wheels that cut margins cleanly and accurately within a tolerance of 1/64 of an inch.

Write No. 39 on Inquiry Card—Page 32

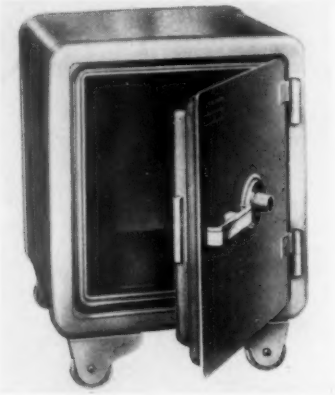
A new pencil has been developed by **Koh-I-Noor Pencil Company, Inc., Bloomsbury, N. J.** Made of specially compounded lead, the new pencil leaves markings on any surface, from the ultra-smooth cellophane, plastic, film and heavily waxed cardboard to metal, paper and wood. The dipped end identifies whichever of the six available colors is in use. Koh-I-Noor will send a free sample pencil to all bona fide inquirers.

Write No. 40 on Inquiry Card—Page 32



A new vinyl **plastic sleeve** protects punched cards from bending, dirt or damage. Several cards may be placed in one sleeve, eliminating the operation of attaching and removing staples or clips. The sleeves are .008" thick with transparent front and translucent back, permitting stiffness and full visibility while providing flexibility for holding one or a group of cards in place. The sleeves are available from **Forbes Products Corp., 625 S. Goodman Street, Rochester 20, N. Y.**

Write No. 41 on Inquiry Card—Page 32



John D. Brush & Co., Rochester, N. Y. has introduced a new low-priced **floor safe.** Weighing 175 lbs. the new safe has passed a 1700° one-hour fire test, 2000° explosion hazard test and a 30 foot drop test. Outside dimensions are 24½" x 17½" x 13". Features include a built-in three-number combination lock, heavy duty bank vault type lock bar, and all welded construction.

Write No. 42 on Inquiry Card—Page 32

A special unit can be installed in your office to provide "instant-hot" water to **make coffee,** tea, bouillon or hot chocolate. Connected to a cold water supply, the heat is provided by a 110-volt, 60 cycle AC electrical connection. A measuring and timing device permits dispensing of the right

THE BEST BUY

*PATENTED

Huron Copysette

PULL OUT Style

MANIFOLD CARBON PAPER SETS

for increased typing output and improved typewritten copies

You can reduce typing costs yet actually step up production with HURON COPYSETTE. Wasteful motions are eliminated. Each second sheet is lightly attached to its own fresh carbon, giving you sharp, clean typed copies. Consistent quality is guaranteed. Insist on the finest — ask for HURON COPYSETTE — by name. Write for free samples and complete information.

*Licensed under Kerr Patent No. 2,557,875

PORT HURON SULPHITE & PAPER CO.

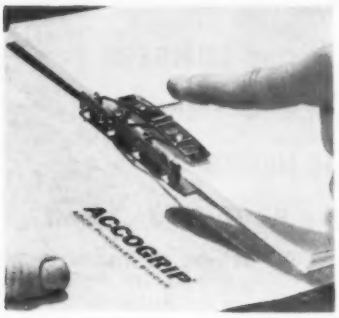
PORT HURON, MICHIGAN

Available in Canada through APSCO PRODUCTS, LTD., Toronto, Canada

For More Information Write No. 240 on Inquiry Card—Page 32

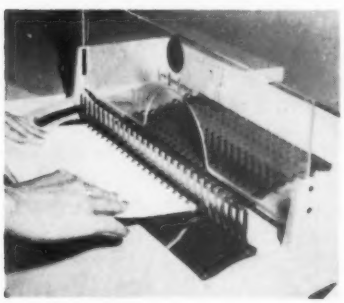
amount of hot water at the press of a button. Inside the chrome steel case, four storage chutes are provided for furnishing powder packets one-at-a-time. Each individual chute will hold about 25 packets. The unit is manufactured by **Concession Supply Company, 3916 Secor Road, Toledo, Ohio.**

Write No. 43 on Inquiry Card—Page 32



A new **punchless binder** represents one of the latest advances in binder design. There are no holes to punch; a spring-action clamp opens or closes instantly as you press with one finger. Manufactured by **Acco Products, Division of Natser Corp., Ogdensburg, N. Y.** the binders are available from most commercial stationers. They come in letter and legal sizes, in red, black, grey, green or blue.

Write No. 44 on Inquiry Card—Page 32



The General Binding Corporation, 1101 Skokie Highway, Northbrook, Ill. recently introduced a new all-electric plastic **binding machine.** A desk top unit, the machine is operated with a touch of the toe. The operator inserts material, and with another touch automatically closes the binding to bind the book. The unit binds books of any size, length and thickness from 3/16″ to 2″.

Write No. 45 on Inquiry Card—Page 32

Perhaps it's time for a fresh design and a bright new **WESTON** *paper*

Your printer, advertising agency or letterhead designer will gladly suggest a new design and a paper of appropriate quality from the complete family of Weston cotton fiber letterhead papers — including Old Hampshire Bond (Extra No. 1, 100%), Defiance Bond (100%), Winchester Bond (50%), Weston Bond (25%) and Weston's Hand Weave (25%). Write Dept. PN for samples.

BETTER COTTON FIBER PAPERS

Better Papers are made with cotton fiber

WESTON PAPERS · PROTECT YOUR RECORDS ·

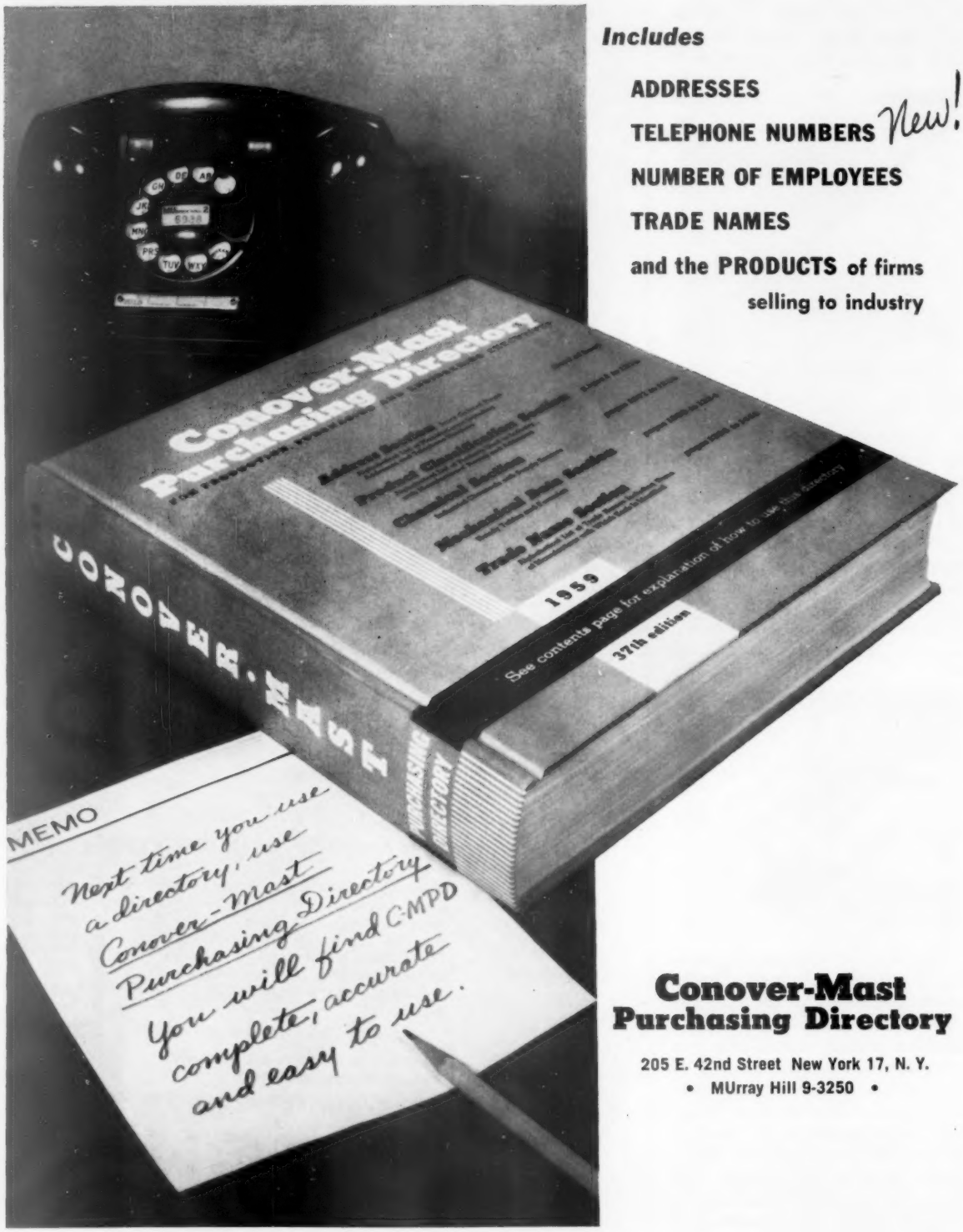
BYRON WESTON COMPANY
Dalton, Massachusetts
Makers of Papers for Business Records Since 1863

WESTON PAPERS

Leading Makers of: LETTERHEAD PAPERS • POLICY PAPERS • LEDGER PAPERS • INDEX BRISTOLS

For More Information Write No. 241 on Inquiry Card—Page 32

Designed for **INDUSTRIAL** buying


Conover-Mast Purchasing Directory
CONOVER-MAST
1959
37th edition
See contents page for explanation of how to use this directory
MEMO
Next time you use a directory, use Conover-Mast Purchasing Directory
You will find C-MPD complete, accurate and easy to use.

Includes

ADDRESSES

TELEPHONE NUMBERS *New!*

NUMBER OF EMPLOYEES

TRADE NAMES

and the **PRODUCTS** of firms selling to industry

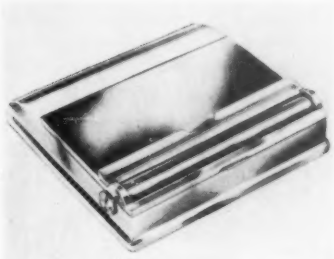
Conover-Mast Purchasing Directory

205 E. 42nd Street New York 17, N. Y.
• MUrray Hill 9-3250 •

Office Equipment

A new line of modular **reception seating** was recently introduced by **Royal Metal Manufacturing Co., One Park Avenue, New York, N. Y.** The new furniture's flexibility is particularly suited to limited space areas.

Write No. 46 on Inquiry Card—Page 32



A new **label gluer** has been developed by **Glue-Fast Equipment Co., Inc., 12 White Street, New York, N. Y.** Designed for applying glue to large-sized ungummed labels it comes in three sizes, 6", 9" and 12". To complement the new gluer, the company has also developed a new glue for ungummed labels. The new glue can remain in manually operated gluers overnight without crystallizing. All bona fide inquirers will receive a free pint size sample.

Write No. 47 on Inquiry Card—Page 32

A new catalog of stock **business forms** is available from **Alfred A. Watts Company, Inc., Allwood, Clifton, N. J.** In addition to the regular purchasing forms, the catalog illustrates many general business forms, correspondence expediters, register-type forms and various devices.

Write No. 48 on Inquiry Card—Page 32

VERTI-FILE can save you money!

●Here's how! The new modern system for filing active records... VERTI-FILE... costs as little as $3.28 per lineal foot of active filing space—whereas a conventional 4 drawer unit costs $10.68 a lineal foot.

You see, an 8-shelf VERTI-FILE provides space for 23½ lineal feet of files . . . and at the same time positions them for 35% faster filing plus more efficient usage. A regular 4 drawer file gives only 8⅔ lineal feet of storage space.

So save with VERTI-FILE.

Call your local DeLuxe dealer or write direct.

DELUXE METAL PRODUCTS CO., Warren 10, Pa.
A division of the Royal Metal Manufacturing Co.

DM-59-03

DELUXE

For More Information Write No. 242 on Inquiry Card—Page 32

MARKING METAL?

Blaisdell markers do the trick

CHINA-MARKER

Unsurpassed for bold, bright marking on all surfaces. Strong and durable—adheres firmly—14 vivid colors.

OMNIMARK—Thinner diameter lead for fine line marking.

DU-ALL MECHANICAL PENCIL

Convenient propel-repel action. 8 brilliant, all purpose leads with barrels to match.

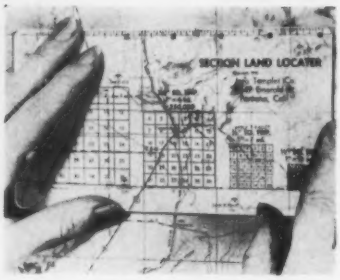
AT BETTER STATIONERS EVERYWHERE

Test the marker that suits your needs. Send for sample naming this publication.

blaisdell PENCIL COMPANY BETHAYRES, PA.

For More Information Write No. 243 on Inquiry Card—Page 32

Office Equipment



A transparent plastic **template** is being marketed by the **Jero Templet Co., 8549 Emerald Street, Fontana, Calif.** It is used to locate any section of land on township drawn maps. It is designed to fit the eight most commonly used map scales. Its size, 3¾" x 6¾" permits the template to fit pocket or ring binder.

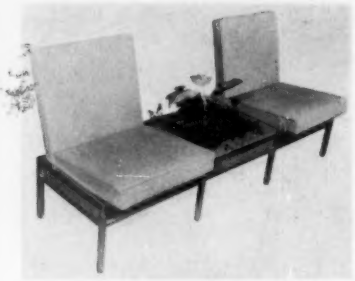
Write No. 49 on Inquiry Card—Page 32

A stainless steel **iced tea urn** is now available for large users of iced tea. The urn comes in either five or ten gallon sizes and has a steel basket which raises or lowers tea bags from floating or sinking to the bottom. Among its features are a glass gauge that shows the level remaining and a sloping bottom that allows for complete drainage. It is manufactured by **Continental Coffee Company, 2550 N. Clybourn, Chicago, Illinois.**

Write No. 50 on Inquiry Card—Page 32

A **catalog** of 1960 office calendars is now available. Published by **Defiance Calendar Co., Inc., 1451 Broadway, New York 36, N. Y.** the new catalog features illustrations of the pad-style, book-style and many other executive and secretarial calendars.

Write No. 51 on Inquiry Card—Page 32



A complete new reception room and lounge **seating system,** including a variety of tables and planter units have been introduced by **Royal Metal Manufacturing Company, New York, N. Y.** Beginning with individual chairs and ottomans, the system utilizes a standard 24" x 20" module to make possible an unlimited range of linear corner and other seating arrangements.

Write No. 52 on Inquiry Card—Page 32

Your business machine records with multiple punching in the margin deserve better than loose, makeshift filing. If they're valuable enough to make in the first place, they're valuable enough to keep in order and safe.

That's where Accopress Pin Prong Binders come in. "Pin Prong" was designed by Acco solely to fill the need for efficient, durable, economical temporary or permanent filing of marginal pre-punched sheets. Ask your stationer.

ACCO PRODUCTS
A Division of NATSER Corporation
OGDENSBURG, NEW YORK
In Canada: Acco Canadian Co., Ltd., Toronto

For More Information Write No. 244 on Inquiry Card—Page 32

Take the mike . . .

See how this new Edison VOICEWRITER dictating machine helps you break through your "time barrier" to new success!

You'll take the mike . . . dictate . . . and suddenly you'll realize that any other dictating method is now old-fashioned!

You'll see how this all-new Voicewriter saves man-hours by acting as a rapid, foolproof dispatcher of correspondence . . . a communicator of instructions . . . a conference reporter . . . a sounding board for sales talks, ideas and speeches! Its features? All you would expect to find in the finest dictating machine ever built . . . and then some!

Think we've exaggerated? We offer you a friendly challenge to mail the coupon—"take the mike" at your own desk, with your own work, for just a few minutes! Once you take the mike...*your* talk will be our best sales talk!

FREE TRYOUT!—Just fill out and mail this coupon to Edison Voicewriter, West Orange, New Jersey. Your Voicewriter representative will do the rest. No obligation!

. . .

Okay Edison, I'd like to take the mike of the all-new Edison Voicewriter. Please call me to arrange a demonstration.

Name_____

Title_____

Organization_____

Address_____

City_____ Zone____ State_____

PM525

Edison Voicewriter

A product of Thomas A. Edison Industries, McGraw-Edison Company. West Orange, N.J. In Canada: 32 Front Street W., Toronto Ont.

McGRAW EDISON

For More Information Write No. 245 on Inquiry Card—Page 32

Photograph by Bruce Davidson

DICK WILSON LIVES WITH ALUMINUM

If the next man to enter your office is an average Alcoa salesman, he'll shape up a lot like Dick Wilson. He'll draw on the experience Alcoa has gained in 80 years of aluminum production. He'll have more time to serve your interests, because he belongs to the aluminum industry's largest sales force.

He was carefully screened for his work, for out of 66 candidates, only one makes the grade. He's probably a graduate engineer; six out of ten Alcoa salesmen are. Before his first call, he spent time in nine principal Alcoa plants to learn how aluminum is made and fabricated —part of the most intensive sales training the industry offers. All these figures give him a broad edge over his competitors.

Because he lives with aluminum on a job that takes him into scores of shops on hundreds of applications, he regularly brings outside light to bear on your problems. And most important of all, he is your direct line to matchless technical resources. You can count on Dick Wilson and his counterparts in 72 Alcoa sales offices to put more than just 16 ounces of metal into every pound of Alcoa® Aluminum you buy. Aluminum Company of America, 2017-E Alcoa Building, Pittsburgh 19, Pa.

ALCOA ***helps you design it, make it, sell it***

Alcoa has hundreds of Dick Wilsons to help you design it, make it, sell it

All of Alcoa's skills are mobilized to a single purpose: To put more than just 16 ounces of metal in every pound of Alcoa Aluminum you buy. Here are 12 of the dozens of ways to do it:

1. Research Leadership, bringing you the very latest in aluminum alloys and applications.

2. Product Development by specialists in your industry and your markets.

3. Process Development Labs for aid in finishing, joining and fabricating.

4. Service Inspectors to help solve production problems at your plant.

5. Quality Control to meet top standards or match your special needs.

6. Complete Line including all commercial forms, alloys, gages, tempers.

7. Availability via the nation's best stocked aluminum distributors.

8. Foremost Library of films and books to help you do more with aluminum.

9. Trained Salesmen with a wealth of on-the-spot information.

10. Sales Administrators constantly on call to service your orders.

11. Year-Round Promotions expanding your old markets, building new ones.

12. The Alcoa Label, leading symbol of quality aluminum, to mark your goods.

Added Values With Alcoa Aluminum

. . . is a case book of Alcoa special services and a guide to their availability in design, manufacture and sales. Your copy, with some of the most rewarding information you may ever read, is waiting and it's FREE. Write: Aluminum Company of America, 2017-E Alcoa Building, Pittsburgh 19, Pa.

For More Information Write No. 246
←on Inquiry Card—Page 32

COMPUTER DOES EVERYTHING BUT BUY

(*Continued from page 75*)

matic verification and adjustment of stock status in those cases where an actual physical count was made in the previous week.

At the end of the month, control factors are reset on the basis of the month's experience. For example, annual usage is corrected to reflect the last month's usage, changing the base on which new calculations are made. In addition, a general review of the status of each individual part pinpoints the obsolete and excess items. A monthly detailed analysis gives enough trend and status information to evaluate the performance of the system in comparison with predicted results.

Output Reports

All this input and processing results in a wide range of specific output reports, chief among which are the following:

The Purchase Requisition. The system's primary output are requisitions which authorize the purchasing department to buy particular parts in specified quantities. The computer not only determines when and how much of a part should be reordered, but gives complete internal receiving and routing instructions and attaches a "rush" priority when necessary.

The Standard Parts and Hardware Catalog. It lists all parts under control in terms of their nomenclature, control account number, finish department (if any), inspection department, reorder point quantity, procurement lead time, average monthly usage, shelf life limit (if any), useup code (for a part which will not be re-ordered), latest purchase price, on-order quantity, and on-hand quantity. Copies of this catalog go to production control, to the engineering standards department to help them determine break-in points for changes, and to the various cost accounting and pricing groups.

The On-Order Status Report. This is essentially a print-out of the data pertaining to parts on order, as contained in the Control File. With it, production control can immediately determine the status of any part on order; pinpoint the location of parts which are actually in plant but are still in receiving, inspection, or enroute to the stockroom; and to determine the quantity of parts being reworked. All this information is vital if expediting is required, or where engineering changes are involved.

The Continuous Inventory Verification Report. This is prepared weekly to help the auditing department in its program of perpetual inventory verification. Physical count data is combined in sequence with other inventory transactions to verify the accuracy of the file's "on hand" quantity. The report gives the date of the last physical count; both the file record and physical count of the on-hand quantity, and the difference if any; a re-count flag, denoting that a re-count is necessary if the difference exceeds specified limits; an adjustments flag, to indicate that an adjustment was made to the file record; and standard dollar value of the parts counted.

The Monthly Accounting Journal Vouchers. These indicate debits and credits to the inventory accounts during the month. Transactions input data which is used to control the physical inventory is priced from the Master File during the weekly processing and accumulated as input to the monthly accounting runs. This, combined with the flexibility and speed of the computer, allows for final preparation of the reports within a few days after the end of the month.

The Delinquent Purchase Order Report. It lists overdue purchase orders in serial number sequence, by buyer and vendor. It is used to expedite delinquent orders and for feed-back to the computer from the purchasing department with regard to purchase orders which have been closed out short (allowable undershipment). This latter information is processed against the Master Parts File and Control File to balance on-order status and to close out the affected purchase orders in the Control File. With this system, quick reports can be made.

A view of the guests sitting at the head table during the dinner meeting of the North Jersey association.

Andrews Speaks to North Jersey Group

THE PURCHASING Agents Association of North Jersey held its annual purchasing-sales dinner at the Essex House Hotel in Newark, N.J., recently.

Featured speaker at the meeting—which was attended by purchasing and sales executives in the New Jersey area—was E. F. "Andy" Andrews. Mr. Andrews is a past president of the National Association of Purchasing Agents and a member of the purchasing division of Allegheny-Ludlum Steel Co. His topic was "Free Economy or Free Loading."

Philip D. Richmond, president of the North Jersey association, presided at the meeting. Don O. Williams was chairman of the dinner committee, assisted by Abe Kraus, a member of the executive committee.

E. F. "Andy" Andrews speaking to the group on the subject, "Free Economy or Free Loading."

Relaxing before the meeting (l. to r.): David R. Gibson, national director of the New York assoc., Frank Curran, national director of the North Jersey assoc., and Philip D. Richmond, president of the North Jersey group.

Three officers of the North Jersey purchasing agents association discussing arrangements for the purchasing-sales dinner. From l. to r.: John S. Baiby, Charles Messner, and Howard C. Webster.

For More Information Write No. 247 on Inquiry Card—Page 32→

Clark *Ranger* loads a flat-bed delivery truck at yard.

Ranger is then towed to job site at 55 mph.

Truck parks while *Ranger* delivers over rough terrain.

Ranger positions material right where it's needed.

Mud or sand is no problem...neither is distance!

Slip the new *Ranger*® in 4-wheel drive and run a full load of heavy materials through mud, slush, or soft sand with no bog-down, no stoppages. Use the *Ranger* to load in your yard, drive or tow it on the highway at speeds to 55 mph . . . then use it to deliver materials over terrain that's impassable for regular highway vehicles. With the *Ranger*, you're able to spot the load right where you need it . . . even 24 feet in the air.

A *Ranger* will work anywhere . . . everywhere. In fruit groves, for example, a new type steering action enables the *Ranger* to maneuver large boxes of fruit around closely planted trees. In saw mills, block plants, steel mills . . . the *Ranger's* unique design makes yard surfacing unnecessary.

A 4,000 lb. capacity *Ranger** can climb a 43% grade fully loaded. This work-anywhere fork truck has power steering, vacuum brakes, high underclearance, high flotation, big-cleat tires... in fact it has everything needed to do the toughest jobs... under the most adverse conditions.

A special brochure and spec sheet is available upon request. For your copy write: *Ranger*, Clark Equipment Company, Battle Creek, Michigan.

CLARK® EQUIPMENT

**Also available in 6,000 lb. capacity*

Printed in U. S. A.

Annual Canadian Conference To be Held June 5-7 in Banff

THE 34th Annual Canadian Purchasing Conference will be held in Banff, Alberta, June 5, 6 and 7. C. L. Chapman, convention chairman and purchasing agent of the Sun Oil Company, Calgary said that the response to date indicates that more than 600 delegates will be attending the conference.

Sir Toby Low, former minister of state of the British Board of Trade, will be one of the principal speakers to address the annual meeting at Banff.

Other speakers at the convention will be: Dr. Willis M. Tate, president of Southern Methodist University, Dallas, Texas; A. S. Harrison, Ford Motor Company, Toronto; W. W. Jefferson, Reliance Electric and Engineering, Welland, Ontario; and Grant MacEwan, Calgary, member of the Alberta Liberal party.

Also announced as feature speakers are: J. W. Kerr, president of Trans-Canada Pipe Lines, Ltd., Toronto; W. A. Small, executive secretary-treasurer of the Canadian Association of Purchasing Agents; G. H. L. Dempster, superintendent of Banff National Park will welcome delegates to Banff at the opening session of the convention of Friday morning, June 5.

Business sessions will continue through Friday and Saturday, with specialty groups meeting separately.

Convention chairmen have arranged a number of excellent functions for the entertainment of visitors.

Sir Toby Low, former minister of state of the British Board of Trade, will be one of principal speakers at the 34th Canadian Conference.

Dr. Willis S. Tate, president of Southern Methodist University, Dallas, Texas, is scheduled to speak to delegates at the Banff meeting.

Serving with Mr. Chapman as co-chairman of the conference is N. H. Collin, Burgess Building & Plumbing Supplies, Ltd. W. E. Wootton, British American Oil Co., Ltd. has the responsibility of program chairman.

Other members of the conference commitee are: F. M. Dawson, Royalite Oil Co., Ltd.; I. K. MacDonald, Texaco Exploration Co.; S. W. Dash, The Alberta Pacific Grain Co.; J. S. Kittle, British American Oil Co., Ltd.; D. J. Baisley, Pacific Petroleums Ltd., E. J. Pender, Sinclair Canada Oil Co.; J. C. Willis, Canadian Western Natural Gas Co. Ltd.; G. D. Johnston, Imperial Oil Limited; B. H. White, The California Standard Co.; and W. S. Brighton, Alberta Wheat Pool.

C. L. Chapman, conference chairman, sports his "going to Banff in '59" hat.

Safest switches known

—in every size from 30 to 1200 amps

Large or small, BullDog Clampmatic® Vacu-Break® Safety Switches provide *maximum* protection . . . meet your every switching need. You get added safety because of these two exclusives: The unique Clampmatic spring increases the pressure against contact jaws . . . assures clamp-tight connections . . . faster break . . . *really safe operation*. Vacu-Break action snuffs arcs immediately . . . reduces pitting and burning of contacts for long, trouble-free switch life.

BullDog's "Big Three" safety switches, the "Master", "Junior" and "Raintight", assure positive switching . . . virtually eliminate costly maintenance. Get this extra safety, extra performance now. Specify BullDog Vacu-Break Safety Switches.

For safety's sake buy Vacu-Break

BULLDOG ELECTRIC PRODUCTS DIVISION
I-T-E CIRCUIT BREAKER COMPANY
BOX 177 • DETROIT 32, MICHIGAN

In Canada: 80 Clayson Rd., Toronto 15, Ont. Export Division: 13 East 40th St., New York 16, N.Y.

For More Information Write No. 248 on Inquiry Card—Page 32

For information on conditions, trends and markets in the chemical industry, *see the men from*

OLIN MATHIESON

MATHIESON INDUSTRIAL: Ammonia • Bicarbonate of Soda • Carbon Dioxide • Caustic Soda • Chlorine • Formaldehyde • Hydrazine and Derivatives • Hypochlorite Products • Methanol • Muriatic Acid • Nitrate of Soda • Nitric Acid • Soda Ash • Sodium Chlorite Products • Sodium Methylate • Sulfate of Alumina • Sulfur (Processed) • Sulfuric Acid • Urea

BLOCKSON: Trisodium Phosphate • Trisodium Phosphate Chlorinated • Sodium Tripolyphosphate • Tetrasodium Pyrophosphate • Sodium Hexametaphosphate • Monosodium Phosphate • Disodium Phosphate • Sodium Acid Pyrophosphate • Tetrapotassium Pyrophosphate • Sulfuric Acid • Hydrofluoric Acid • Sodium Silicofluoride • Sodium Fluoride • Teox® 120 Surfactant • C-29 Sequestering Agent

MATHIESON ORGANICS: Ethylene Oxide • Ethylene Glycol • Diethylene Glycol • Triethylene Glycol • Polyethylene Glycols (Poly-G's®) • Monoethanolamine • Diethanolamine • Triethanolamine • Glycol Ethers (Poly-Solv's®) • Surfactants (Poly-Tergents®) • Ethylene Dichloride • Dichloroethylether

6579-A

OLIN MATHIESON CHEMICAL CORPORATION
CHEMICALS DIVISION • BALTIMORE 3, MD.
For More Information Write No. 249
on Inquiry Card—Page 32

Association News

Central Iowa Association Holds Annual Drake Conference

C. W. McVicar, director purchasing and traffic, Rockwell Mfg. Co., Pittsburgh, Pa.

D. E. Fink, supervisor, value analysis, Hotpoint Co., Milwaukee, Wisc.

W. M. Bergemann, director of purchases, Falk Corp., Milwaukee, Wisc.

F. C. Walters—Retired, Esso Standard Oil Co., Baton Rouge, Louisiana.

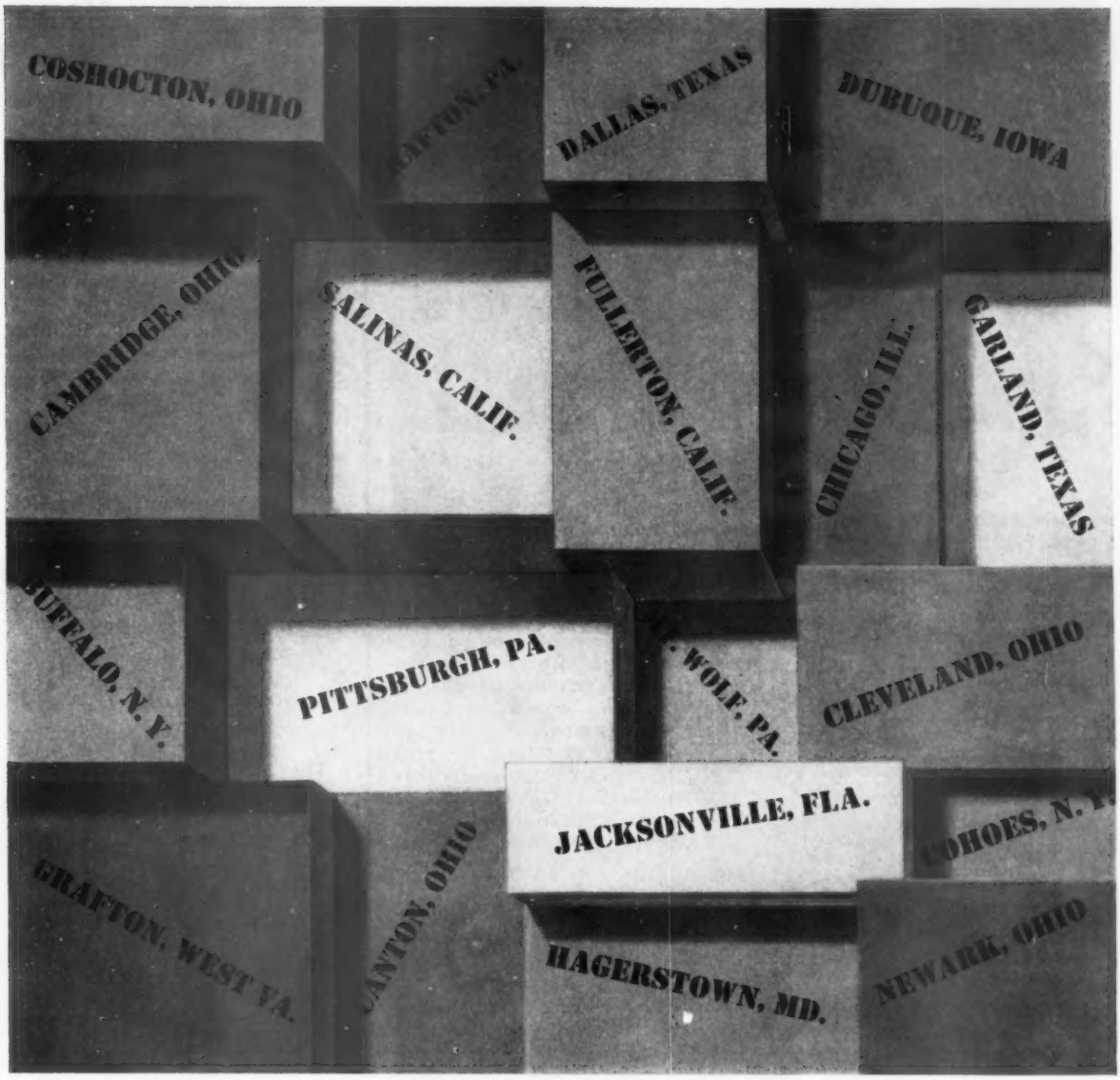
AT THE annual Drake Purchasing Conference, sponsored by the Purchasing Agents association of Central Iowa, Art Minor, John Morrell Co., Ottumwa, Iowa, was nominated for president for the coming year. First and second vice presidents nominated were Alvin Rempp, Dun-Lap Mfg. Co., Newton, Ia. and Don Balvin, Lennox Industries, Des Moines. Treasurer will be Bill Langefeld, The Maytag Co., Newton, Iowa. Bob Reeves, Frye Mfg. Co., Des Moines, Iowa was nominated secretary.

The conference was attended by 75 members and was handled by Al Rempp after a warm welcome by this year's vice president, Art Minor. Among the several fine speakers was D. E. Fink, supervisor, value analysis, Hotpoint Co., Kitchen Appliance Dept., Milwaukee Wisc. who discussed "Value Analysis".

C. W. McVicar, director of purchasing and traffic for the Rockwell Mfg. Co., Pittsburgh, Pa., gave a very well received talk on "The Value of a Purchasing Manual to Purchasing and Management."

From the deep south to the corn state came F. C. Walters of Esso Standard Oil Co. Baton Rouge, La. to speak on "Data Processing as a Purchasing Tool." W. M. Bergemann, director of purchases for the Falk Corp., Milwaukee, Wisc., gave an interesting talk entitled, "Scientific Approach to Purchasing."

The May meeting will feature a steak fry to be held at the Midwest Metal Stamping Company's picnic grounds, Kellogg, Iowa. It will begin with a social hour.



St. Regis boxes come from all over America!

It's easy to get the corrugated boxes you want . . . when you want them. That's because St. Regis operates box plants in 19 cities throughout America!

You gain many other advantages, too, when you buy St. Regis boxes. They give your product outstanding protection because they're engineered by experts . . . then made from the finest materials on the most modern equipment.

Result? A superior shipping container that gets your product to market—and helps market your product when it gets there.

For more specific information, write St. Regis Paper Company, Dept. MP-559, 150 East 42nd Street, New York 17, N. Y.

CONTAINER DIVISION

St. Regis PAPER COMPANY

150 EAST 42ND STREET, NEW YORK 17, N.Y.

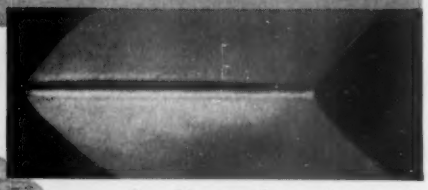
For More Information Write No. 250 on Inquiry Card—Page 32

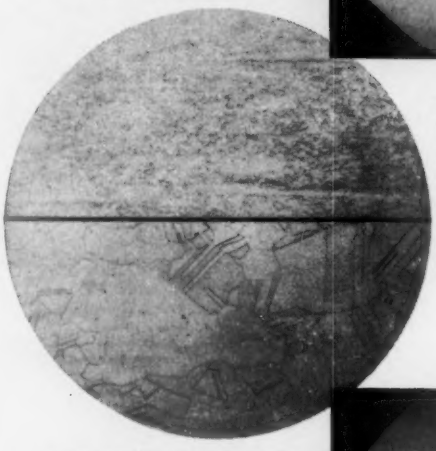
To Get The Grain That Takes The Strain

Specify WRM

Precision Annealed PHOSPHOR BRONZE

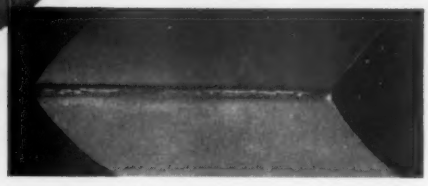
WRM PRECISION ANNEALED SPRING TEMPER PHOSPHOR BRONZE ▶





▲ Upper photomicrograph shows the fine even, grain structure resulting from WRM *precision annealing.* This structure gives the metal up to 30% greater fatigue life plus the increased formability that enables it to take the strain of severe bends as shown above.

ORDINARY ANNEALED SPRING TEMPER PHOSPHOR BRONZE ▶



For more information on WRM precision annealed phosphor bronze send for this new, free bulletin.

▲ Lower photomicrograph shows coarse uneven grain that causes the type of cracking shown here.

WATERBURY ROLLING MILLS, INC.

Main Offices & Plant:
Waterbury, Conn. Tel. PLaza 4-5131

- In N.Y.C. — MUrray Hill 7-1246
- In Phila. — ADams 3-1869
- In Chicago — SHeldrake 3-0100
- In Detroit — DUnkirk 6-3444

ALSO NICKEL SILVER & OTHER COPPER ALLOYS

WR-24

For More Information Write No. 251 on Inquiry Card—Page 32

Association News

Dayton Products Show Huge Success

The Dayton Association of Purchasing Agents held their annual Member Products Show in Dayton recently. Exhibitors from all over the Miami Valley gave one of the best shows seen in the area.

Tom Warner, M. J. Gibbons Supply Co. and Harriette Peters, Simonds-Worden-White Co. were co-chairmen of the event.

The Dayton Association as well as many of the exhibitors donated door prizes. Among the winners were: Mick Hinkle, Tait Mfg. Co., Warren Fugett, United Aircraft Products, E. J. Wildenhaus, Simond-Worden-White Co., and R. H. Gordon, The National Cash Register Co.

South Bend P.A.'s Meet New V. P.

The South Bend Purchasing Agents Association was fortunate to have Lester E. Davis, director of purchases, Pitman-Moore Company, Indianapolis, Indiana and John Berry, Fourth District vice president-elect at a recent meeting.

Mr. Davis was the principal speaker of the evening and his talk was on the topic, "Why Professional Development?"

He stated that, "If purchasing is to continue to grow in professional status, it is essential that we continue our professional development. As a result of a number of surveys, it has been shown that despite all the attention accorded purchasing in recent years, top management has not shown much interest in purchasing.

"This is mostly due to the fact that our reporting tools are not being used properly. Because of this, chief executives have a poor picture of the purchasing function."

Mr. Davis added, "We cannot and must not be satisfied with our present accomplishments if we expect to get professional recognition."

For More Information Write No. 252 on Inquiry Card—Page 32

AUTO-LITE® NEWSLETTER

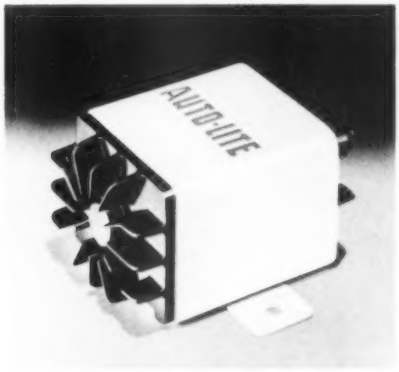
AUTO-LITE ANNOUNCES WORLD'S FIRST TRANSISTORIZED IGNITION SYSTEM

A major break-through in ignition engineering has been achieved by The Electric Auto-Lite Company. It is the world's first high-voltage transistorized ignition system, and its development ends years of research to lift the ceiling placed on engine design by the conventional ignition system.

In addition to its importance to future engine designs, the new Auto-Lite system has a wide range of immediate applications. Because the transistorized system offers dependable starting, 3500 hours or 100,000 miles of maintenance free performance and peak efficiency at all speeds, it has immediate value for industrial and marine engines, military vehicles, commercial fleets, farm equipment and wherever system longevity and superior performance are demanded.

The new system replaces the conventional ignition coil and can be installed in any battery ignition system within a matter of minutes. It provides maintenance free ignition, lifetime distributor contact service and eliminates condensers. Starting failures and poor starting in cold weather due to "blued" contact points are eliminated. Top ignition performance for the full range of engine speeds is obtained with no deterioration of system performance with age.

PRESS COVERS AUTO-LITE DEVELOPMENT . . . *Tom Morris (left), editor of Ward's Automotive Reports, and George Melloan (right), of The Wall Street Journal, discuss Auto-Lite's new ignition system with Electrical Products Group Vice President J. J. Bohmrich (center).*



INDUSTRY FIRST . . . *Auto-Lite's transistor switched transformer will be available for testing by engine manufacturers and fleets. In certain applications the transistor and heat sink will be mounted separately for protection against high ambient temperatures.*

Auto-Lite Sponsors Ignition Conferences

Auto-Lite's new transistorized ignition system was one of the major topics discussed at a series of ignition conferences held at Auto-Lite's research center in Toledo, Ohio.

Sponsored by Auto-Lite for design engineers and other representatives of industry and the military, the conferences helped formulate ignition trends as well as acquaint industry with the design implications of the new Auto-Lite development.

The day-long conference program, which was repeated on various dates to accommodate different groups of industry representatives, included a technical discussion on the transistorized system by Auto-Lite Director of Research George E. Spaulding.

Also, Auto-Lite research engineers used laboratory test displays (see photo below) to explain and demonstrate performance characteristics of the new development.

John Naborowski with Ignition Display

Basis of the Auto-Lite development and "key" to all future ignition systems as engine design trends continue to demand more electrical energy, is Auto-Lite's adaptation of transistors to ignition use. Special circuits and other features of a new transformer developed by Auto-Lite, realize for ignition use the ability of transistors to switch the large currents needed to meet present and future engine demands for more energy available at the spark plugs. Inherent in the design is the capacity to produce even higher secondary voltage when needed.

Form No. G-269 Printed in U.S.A.

"C'est Magnifique"

The Paul Bunyan Country proved cold enough and the Renault big enough for everyone on hand at Bemidji, Minnesota, when Auto-Lite electrical equipment was tested in Renault's new model.

In the photo above with Electrical Products Group General Sales Manager, Automotive Equipment Sales, C. R. Zink (second from right) are engineering representatives from Renault's factory in France. They are (left to right): Ernst Malterre, Phillip Rouvre, Claude Du Plessier and Phillip Chivot.

On the job in the 411B Case-O-Matic Tractor below are Auto-Lite Electrical Products designed for superior performance in rough, dusty conditions of typical farm use. Auto-Lite generator features closed end heads and other special dust sealing devices. A rugged design Auto-Lite regulator is matched to the generator for balanced performance.

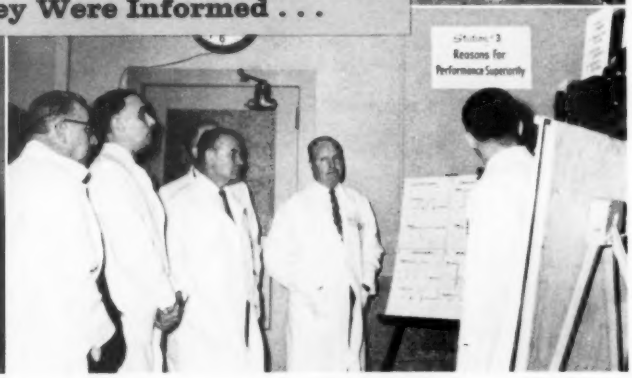
Again to assure trouble free operation, Auto-Lite distributors have special dust seals to protect them against the most extreme operating conditions. Their advance curves are specially matched to the engine for smoother, maximum power performance. Durable oil filled coil provides cooler operation and added reserve power and starting motor features special oil seal, and protection against dust, rain and snow.

Working for Case

EDITORS FIRST TO SEE TRANSISTORIZED IGNITION SYSTEM

Editors of the leading U. S. trade publications as well as representatives of the business and technical press and the major wire services were the first to see Auto-Lite's new transistorized ignition system. During a press conference in Toledo the group at right heard Auto-Lite engineers review the state of modern ignition systems; listened to Auto-Lite Director of Research George Spaulding explain the new transistorized system and its implications for future engine design, and were shown (see photos below) tests that established longevity and superior performance of the transistorized system.

They Came . . . They Saw . . . They Were Informed . . .



G. E. Spaulding
Director of Research

We'll Have the Answer

With the introduction of semi-conductors during the past decade and the power transistor during the mid-1950's, the goal of switching high currents in ignition systems appeared to be attainable. However adapting the transistor to the unique demands of the ignition system presented many problems.

The transistor is sensitive to high ambient temperatures and must be protected from them.

A great deal of energy is dissipated in the transistor during continuous switching cycles (12,000 per mile in an 8-cyl. engine) requiring provisions for safely and efficiently conducting damaging energy in the form of heat away from the device.

Transistors are sensitive to back voltage. Since the voltage induced in the primary of a conventional ignition system is on the order of 350 volts, the ignition coil becomes entirely incompatible with the transistor and a new type of transformer is required.

These problems occupied researchers for a number of years until Auto-Lite solved them with special circuitry and other developments incorporated in a new transformer that permits use of the transistor in the ignition system.

In the transformer redesign, Auto-Lite incorporated a novel circuit arrangement which accomplishes the reduction of back voltage by 8 to 1 while at the same time it gives electrically, a "variable inductance" effect throughout the speed range without resorting to dual contacts.

As a result of Auto-Lite's research, the engine designer can approach his engine program with the full realization that an ignition system is available or can be made available to meet his requirements.

AUTO-LITE

If you'd like to make sure others in your organization review every copy of the Auto-Lite Newsletter, address your request to: Newsletter Editor, Electrical Products Group, The Electric Auto-Lite Co., Toledo 1, Ohio.

Inside Auto-Lite Laboratories

Recent visitors to Auto-Lite laboratories included Robert P. Kelly (top, right) Chief Electrical Engineer for Willys Motors, Inc., and Eric Bonow (lower, right), Assistant Chief Engineer for Wisconsin Motors Corp. Mr. Kelly is shown new transistorized ignition system circuits by C. R. Zink (left), Electrical Products Group General Sales Manager, Automotive Equipment Sales, and Carroll Dunne, research engineer. New distributor is tested for Mr. Bonow by Auto-Lite technician Leo Hoffman (seated) while District Sales Manager D. M. Brown (left) and Chief Distributor Engineer Harry Seubert look on.

Key Men On Electrical Products Team . . .

J. A. Cappi

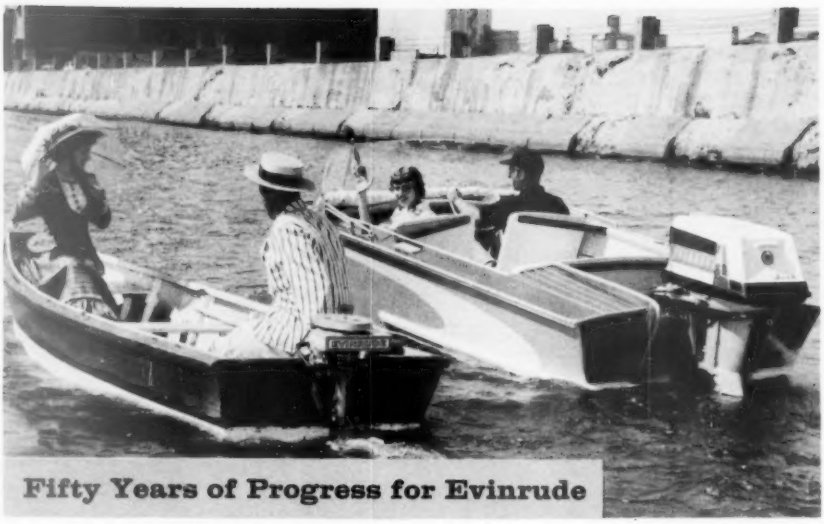
I. B. Hayes

J. B. Franklin

Auto-Lite Vice President J. A. Cappi, I. B. Hayes and J. B. Franklin are key men on the Electrical Products Group team serving you.

These men are on the production team that has as one of its basic responsibilities cost reductions through improved manufacturing techniques. Their efforts have already contributed to cash savings for customers of the Electrical Products Group.

Mr. Cappi, who has been with Auto-Lite since 1925, is an assistant to Group Vice President J. J. Bohmrich. Mr. Hayes heads the Stickney Avenue Plant in Toledo. He has been with Auto-Lite since 1922. Mr. Franklin is Manager of the Syracuse, New York, Division and has been with Auto-Lite since 1946.



Fifty Years of Progress for Evinrude

Marking 50 years of progress in the manufacture of outboards, Evinrude Motors observes its Golden Jubilee in 1959. Attached to the old rowboat at left is a 1909 vintage Evinrude. It contrasts vividly with the Auto-Lite equipped 35 horsepower Evinrude Lark for 1959, on the Switzer Lightning runabout on the right.

Literature Available from Auto-Lite

"Wherever wheels turn . . . you will find products of Auto-Lite."

The new Auto-Lite Road Atlas and Radio Guide will fit conveniently in the glove compartment of your car. A helpful guide to all the roads of the U. S., Canada and Mexico, it is available without charge. Address inquiry to the Newsletter Editor, The Electric Auto-Lite Company, Toledo 1, Ohio.

Other literature available from Auto-Lite includes "An Evaluation of Modern Ignition Systems" by Auto-Lite Director of Research George E. Spaulding. This technical discussion covers modern ignition problems and solutions including Auto-Lite's new transistorized system.

* * *

Also available upon request are product folders describing Auto-Lite Pump and Traction Motors; Distributors; Voltage Regulators; Oil Filled Coils; Starting Motors; Generators; Fractional Horsepower D.C. Motors; and Relays, Governor Switches and Solenoid Switches.

And, for general information about Auto-Lite electrical products and Auto-Lite Research, send for *Auto-Lite Electrical Products For Original Equipment* and *Auto-Lite Engineering, Production Research and Development Facilities.*

Sales Meeting

FOOD AND FACTS *cap three day meeting of Electrical Products Group Sales force to review the new Auto-Lite research development and new sales and engineering programs.*

In the News . . .

Joint Proposal for the Atomic Energy Commission is being discussed here by Auto-Lite and ACF Industries representatives. Left to right are: John Davidson, Raymond Durante, Dr. William O'Leary (all of ACF) and George Spaulding, Auto-Lite.

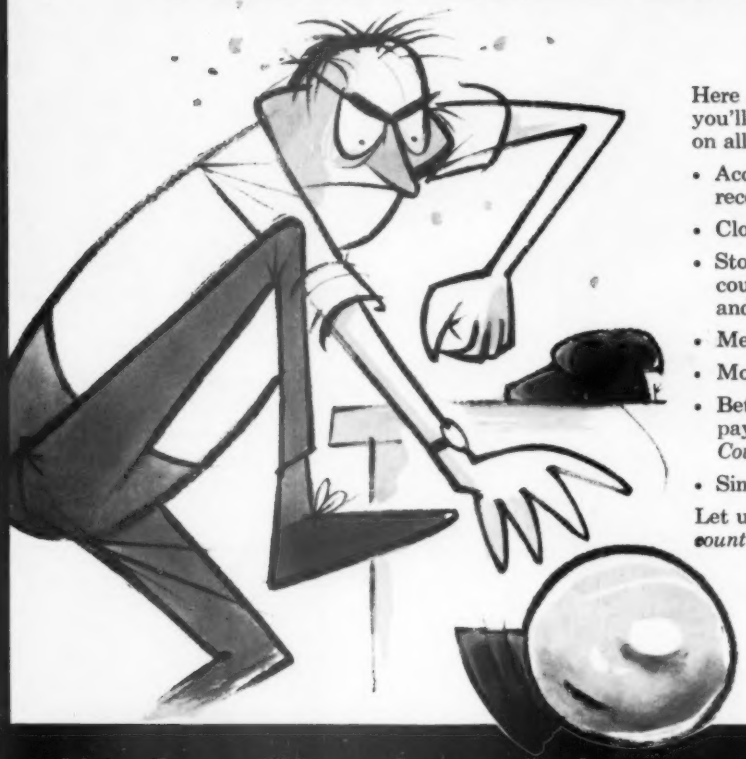
Auto-Lite Research and a wide selection of Auto-Lite products were featured in the Auto-Lite exhibit at the Sheraton-Cadillac in Detroit during the annual meeting of the S.A.E.

Nearly 400,000 boating enthusiasts visited the Auto-Lite exhibit at the New York Motor Boat Show. Names of Auto-Lite's original equipment customers were made a part of the display.

"No More Crystal Ball!

Now we're in business with

FACTS-IN-FIGURES"



Here are some of the chief advantages you'll get from Veeder-Root Counters on all your machines and processes:

- Accurate, up-to-date production records
- Closer production *Count*rol
- Stop-and-Go *Count*rol (with preset counters that prevent over-runs and shortages)
- Measurement of material lengths
- More accurate costing
- Better basis for wage and incentive payments, piecework and payroll *Count*rol
- Simplified tax computation

Let us show you how easy it is to *count out* costly guesswork. Write:

You always "Know the score" when you count on Veeder-Root!

#1110 Measuring Counters are easily installed on many types of production and inspection machines . . . recording yards, feet, meters and other units of length. Furnished with smooth, knurled, grooved or rubber-faced friction wheels or forked coupling for attachment to rolls or shafts. *Send for new Condensed Catalog.*

Everyone can Count on

Veeder-Root Inc.

Hartford 2, Connecticut

Hartford, Conn. • Greenville, S. C. • Altoona, Pa. • Chicago
New York • Los Angeles • San Francisco • Montreal

Offices and Agents in Principal Cities

For More Information Write No. 253 on Inquiry Card—Page 32

YOU'RE RIGHT HERE

BOLTS

Anchor
Battery
Carriage
Elevator
Lag
Machine
Countersunk Head
Hexagon Head
Square Head
Plow
Step
Stove
Structural
Stud
SPECIAL BOLTS
Nylok
Place
Spinlok
LOCKING BOLTS

NUTS

Square Stove
Hexagon Machine Screw
Finished Hexagon
Cold Punched
Square and Hex
Hot Pressed
Square and Hex
Semi-Finished Hexagon
Nuts for High Temperature
and High Pressure Service
(Grade 1, 2 and 2H)

CAP SCREWS

1018 Bright *Coarse or Fine* 1038 Heat-Treated *Coarse or Fine*
In Packages or Bulk

Write for brochure..."How To Specify Fasteners and Save."
Phone or write for our quotes on your fastener requirements.

BUFFALO BOLT COMPANY
Division of Buffalo-Eclipse Corporation
Plants: North Tonawanda, N. Y. and Princeton, Illinois

DISTRICT SALES OFFICES

CHICAGO, ILLINOIS
1534-36 Monadnock Bldg.
HArrison 7-2178

NEW YORK CITY
50 Church Street
REctor 2-1888

NORTH TONAWANDA, N.Y.
101 East Avenue
JAckson 2400 (Buffalo)

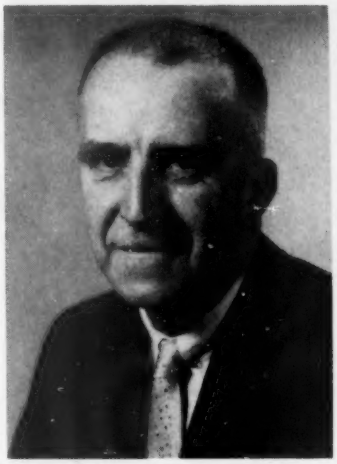
Company Salesmen in all principal centers

For More Information Write No. 254 on Inquiry Card—Page 32

Association News

Special Group Meeting In Chicago

A dinner meeting was held by the commodity, industry, standardization and educational groups of the Purchasing Agents Association of Chicago.



Richard Berry, deputy purchasing agent, City of Chicago.

The program for the evening was conducted by two moderators and eight members of the association in two sessions. They brought out in open discussion perplexing problems of common

Jacob Frehner, purchasing agent, Bowman Dairy Company.

interest to every purchasing agent, assistant and buyer.

Richard Berry, deputy purchasing agent of the City of Chicago was moderator of the first panel with the following members on

STRONG

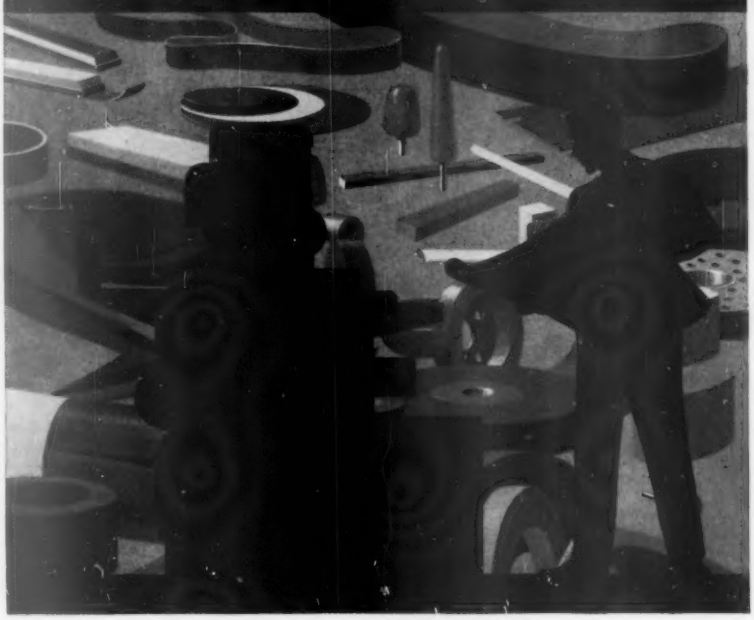
When the convenience of an easy-to-open carton is important and when you want super-strong shipping protection, order one of Central's reinforced-with-glass tapes. Both Glassweb (non-asphaltic) and Glasstex (asphaltic and slightly lower price) conform with Rule 41. The economy of one-pass, one-strip sealing means savings for your shipping department. The ease of opening keeps your customers happy, too. Try either Glassweb or Glasstex and let them prove themselves.

GLASSWEB and GLASSTEX REINFORCED TAPES

CENTRAL PAPER COMPANY • MENASHA, WISCONSIN

For More Information Write No. 255 on Inquiry Card—Page 32

ENGINEERED INSTALLATION
BY MID-WEST
MEANS EXTRA BENEFITS
AT NO EXTRA COST



It takes the correct abrasive, properly installed, to meet the production requirements of both time and quality. The product sales engineers of Mid-West will help you choose the right abrasive to meet *your* particular requirements, in *your* own plant, on *your job* . . . whether it be old applications, new set-ups or quality control. These highly trained abrasive specialists are backed by the constant research and testing of the Mid-West Abrasive Company in their efforts to meet and exceed the demands of the ever-changing industrial scene. Your call will bring you one of these skilled men without obligation.

Mid-West is one of only three abrasive companies offering customers a complete line of abrasive products: sandpaper, grinding wheels, honing stones, abrasive grain and grinding machines.

MID-WEST ABRASIVE CO.

510 Washington St. • Owosso, Michigan

For More Information Write No. 256 on Inquiry Card—Page 32

his panel: Helen Waterman, Chicago Motor Club; Seymour Ellison, Perfection Gear Co.; Roy Sielisch, Radio Industries Inc.; and Donald Harwood, Fairbanks, Morse & Co.

Jacob Frehner, purchasing agent of Bowman Dairy Co. was the moderator of the second panel with the following members: Robert Doyle, Central Soya Co.; Henry Kopp, The Anaconda Co.; Harold North, Victor Mfg. & Gasket Co.; and Conrad Dreiske, Hudson Screw Products Co.

New York Group Conducts Course

The Metropolitan Purchasers Club recently held the third session of the purchasing course being given under their auspices. Donald T. Keliher, director of purchases, U. S. Smelting and Refining Co., Carteret, N. J. was the principal speaker.

Mr. Keliher spoke on "The Administration of the Purchasing Function." He covered in detail such topics as, Purchasing Controls and Procedures, Purchasing Sources and Evaluation, Tools for Purchasing, and Centralized vs Decentralized Purchasing.

Top Purchasing Execs Visit Little Rock

The March meeting of the Little Rock Association of Purchasing Agents was a very special occassion. The group had as its guest and speaker, Gordon Burt Affleck, president of the National Association of Purchasing Agents.

Also on hand for Mr. Affleck's visit were the national directors, presidents and committee chairmen of District Seven.

Mr. Affleck's talk carried a special message for each purchasing agent present. He made it very clear that it was the dedicated men on the local level that made the national association what it is. It is only from men working through their local associations that changes, improvements and other projects can be carried out.

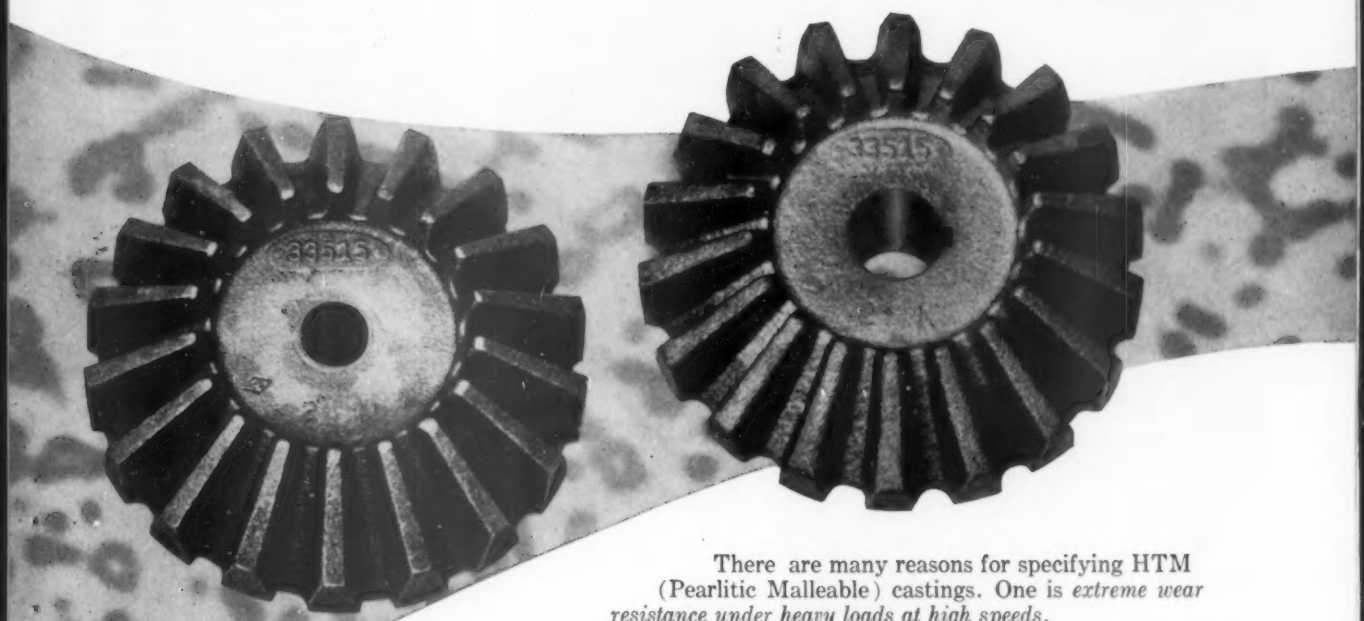
For More Information Write No. 257 on Inquiry Card—Page 32→

is your problem

wear resistance?

NATIONAL HTM CASTINGS

are the answer



There are many reasons for specifying HTM (Pearlitic Malleable) castings. One is *extreme wear resistance under heavy loads at high speeds.*

But there are many other reasons, too. For example, close as-cast tolerances can often eliminate machining operations such as on the gear teeth shown above. In this case, it was only necessary to drill and machine the key slot.

Other worthwhile advantages of HTM are high ultimate strength . . . excellent non-seizing bearing qualities that can eliminate costly bushings . . . air or liquid quenching . . . ability to be smooth-finished.

So when you're looking over the materials field, don't overlook the advantages of HTM castings. For HTM metal can be cast by either the shell mold, CO_2, or green sand method. This means production costs tumble . . . performance and saleability of your product go up.

AA-6928

member MALLEABLE CASTINGS COUNCIL

NATIONAL MALLEABLE and STEEL CASTINGS COMPANY

Established 1868 — *Cleveland 6, Ohio*

The nation's largest independent producer of malleable and pearlitic malleable

IMPORTANT PHYSICAL PROPERTIES	
Brinell	163 to 302*
Yield, psi	48,000 to 85,000*
Ultimate, psi	70,000 to 110,000*
Elongation, %	7 to 2*

*Depending upon grade

Let KIRK and BLUM

bring your drawings to life

. . . on weldments and components

For 50 years, Kirk & Blum has served some of the nation's leading manufacturers . . . maintaining their confidence with substantial savings in time and cost. Whatever your fabrication, you can be sure Kirk & Blum will exercise the same care you demand of your own organization.

Kirk & Blum has complete facilities for fabrication of sheet metals, plate and structurals. Copper, aluminum, monel, stainless and other alloy fabrication is a K & B specialty.

Let us send you details on products we have fabricated—or, send prints for prompt quotation.
Kirk & Blum Mfg. Co.,
3125 Forrer Street.,
Cincinnati 9, Ohio.

KIRK & BLUM

For More Information Write No. 258 on Inquiry Card—Page 32

Association News

Four Youngstown P.A.'s Honored

Four purchasing men received merit awards for outstanding service to the Youngstown district and National Association of Purchasing Agents at the annual "Executive Night" banquet.

John Renton, Lombard Corporation; Steve Kakish, Hynes Steel Products; Haydn Williams, Mahoning Valley Supply; and Carl Blumenschein, General Fireproofing Company each received plaques from Byron Evans, chairman of the Merit Awards Committee, in recognition of their achievements and contributions to the purchasing profession.

A group of 300 persons attended the event, including purchasing agents, and management personnel from Warren, Salem, Sharon, Youngstown and surrounding communities.

Youngstown Mayor Frank X. Kryzan extended the city's welcome to the guests and to C. F. Ogden, vice president of the Detroit Edison Company, featured speaker for the banquet.

Mr. Ogden predicted continuation of the current business upturn through the second quarter with a lull in activity during the third quarter and then continued upward pressure in the last quarter.

"Prices are inching up and will continue to do so with personal income and corporation profits also on the increase," he stated.

There will be no runaway inflation, however, according to Mr. Ogden. Some of the factors which will hold down inflation tendencies are foreign competition, federal reserve policies, the local, state and national tax picture and a slow down in the present inventory build up after July 1.

"Supply will continue adequate to meet demand and production will remain up, but will not reach capacity figures during the balance of 1959," he told the group.

Mr. Ogden urged members to make constant use of the monthly National Purchasing Agents Association Business Survey as a

(*Please turn to page 160*)

For More Information Write No. 259 on Inquiry Card—Page 32→

36 Sources

CONVENIENTLY LOCATED FOR FAST SERVICE

AMERICAN SCREW COMPANY
Willimantic, Connecticut

ANCHOR FASTENERS, INC.
Cleveland 5, Ohio
Waterbury 20, Connecticut

THE BLAKE & JOHNSON CO.
Waterville 14, Connecticut

BUTCHER & HART MFG. CO.
Altoona, Pennsylvania

CENTRAL SCREW COMPANY
Chicago 9, Illinois
Keene, New Hampshire
Frankfort, Kentucky

CONTINENTAL SCREW CO.
New Bedford, Massachusetts

ECONOMY SCREW CORP.
Chicago 14, Illinois

ELCO TOOL & SCREW CORPORATION
Rockford, Illinois

FEDERAL SCREW WORKS
Detroit 10, Michigan

GREAT LAKES SCREW CORPORATION
Chicago 27, Illinois

H. M. HARPER CO.
Morton Grove, Illinois

HARVEY HUBBELL, INC.
Bridgeport 2, Connecticut

INDIANA METAL PRODUCTS DIVISION, TEXTRON INC.
Rochester, Indiana

KENTUCKY SCREW CO.
Louisville, Kentucky

LAKE ERIE SCREW CORP.
Cleveland 7, Ohio

THE LAMSON & SESSIONS CO.
Cleveland 2, Ohio

MIDLAND SCREW CORP.
Chicago 32, Illinois

NATIONAL LOCK COMPANY
Rockford, Illinois

THE NATIONAL SCREW & MFG. CO.
Cleveland 4, Ohio
Los Angeles 22, California

PARKER-KALON DIVISION, GENERAL AMERICAN TRANSPORTATION CORP.
Clifton, New Jersey

PHEOLL MANUFACTURING CO.
Chicago 50, Illinois

PITTSBURGH SCREW & BOLT CORP.
Pittsburgh 33, Pennsylvania

PROGRESSIVE MANUFACTURING CO., DIV. OF TORRINGTON CO.
Torrington, Connecticut

RELIANCE DIVISION, EATON MANUFACTURING CO.
Massillon, Ohio

REPUBLIC STEEL CORP. BOLT & NUT DIVISION
Cleveland 13, Ohio

RING SCREW WORKS
Van Dyke, Michigan

ROCKFORD SCREW PRODUCTS CO.
Rockford, Illinois

RUSSELL, BURDSALL & WARD BOLT & NUT CO.
Port Chester, New York
Los Angeles 33, California
Rock Falls, Illinois

SCOVILL MANUFACTURING CO. WATERVILLE DIVISION
Waterville 48, Connecticut

SEMS DIVISION, TEXTRON INC.
Rockford, Illinois

For best fastening performance, specify SHAKEPROOF® Lock Washers when ordering Sems. They're specially engineered for mechanical pre-assembly.

SHAKEPROOF DIVISION, ILLINOIS TOOL WORKS
Elgin, Illinois

SOUTHINGTON HARDWARE MFG. CO. DIV. OF PITTSBURGH SCREW & BOLT CORP.
Southington, Connecticut

THOMPSON-BREMER & CO.
Chicago 22, Illinois

TRIPLEX SCREW CO.
Cleveland 9, Ohio

UNITED SCREW & BOLT CORP.
Chicago 8, Illinois

WALES-BEECH CORP.
Rockford, Illinois

•

For information on SEMS sources in Canada contact:

CANADA ILLINOIS TOOLS LTD. SHAKEPROOF FASTEX DIVISION
Toronto, Ont., Canada

mechanically

pre-assembled fasteners

reduce handling costs

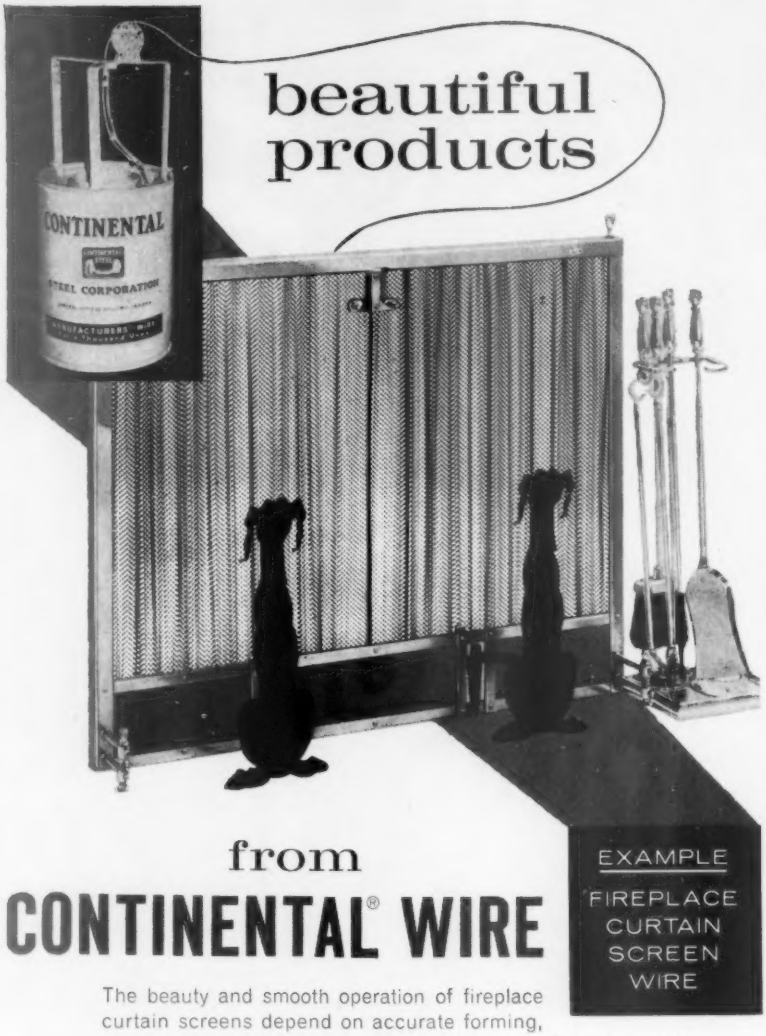
Sems eliminate handling separate washers and screws, save time, speed production. Pre-assembly guarantees the washer will not be forgotten or mis-matched to the screw, improves product quality with a better fastening. Ideally suited for automatic hopper-fed driving, pre-assembled Sems is a first step in automation. The source nearest you supplies Sems in a wide variety of styles and sizes.

Sems

pre-assembled screw and lock washer

SEMS is a development of Illinois Tool Works, Chicago

itw



from
CONTINENTAL® WIRE

The beauty and smooth operation of fireplace curtain screens depend on accurate forming, even spacing, and neat appearance of the mesh. The wire used must be of correct temper, diameter and finish. Uniformity of these properties is of prime importance. Leading fireplace equipment makers choose Continental Wire because it possesses these features dependably, in coil after coil. The ability to take intricate forming is an important reason why Continental Wire is specified for scores and scores of other products made with wire. Continental Curtain Screen wire, 19 gauge through 20 gauge inclusive in size, is available in 500 pound to 650 pound catchweight single length coils packed in Leverpac Drums for faster weaving with less down time, cleaner handling and better storage. For wire in practically any size, finish, temper or analysis, in low or medium low carbon steels, see Continental first!

Fine Finishes in Manufacturers' Wire

CONTINENTAL STEEL
CORPORATION

KOKOMO • INDIANA

PRODUCERS OF: Manufacturers' Wire in many sizes, tempers and finishes, including Galvanized, KOKOTE, Flame-Sealed, Coppered, Tinned, Annealed, Liquor Finished, Bright and special shaped wire. Also Welded Wire Reinforcing Fabric Nails, Continental Chain Link Fence, and other products.

For More Information Write No. 260 on Inquiry Card—Page 32

Association News

(*Continued from page 158*)

reliable barometer of business trends. The survey methods have proven very accurate in the past and their prompt and simple presentation has enabled purchasing agents to forecast trends much earlier than other methods.

Public Relations Topic At Dayton

The principal speaker for the annual public relations night at the Purchasing Agents Association of Dayton was R. S. Burnett.

Mr. Burnett stressed public relations as a daily project of every good purchasing agent and an individual members effort in the purchasing association.

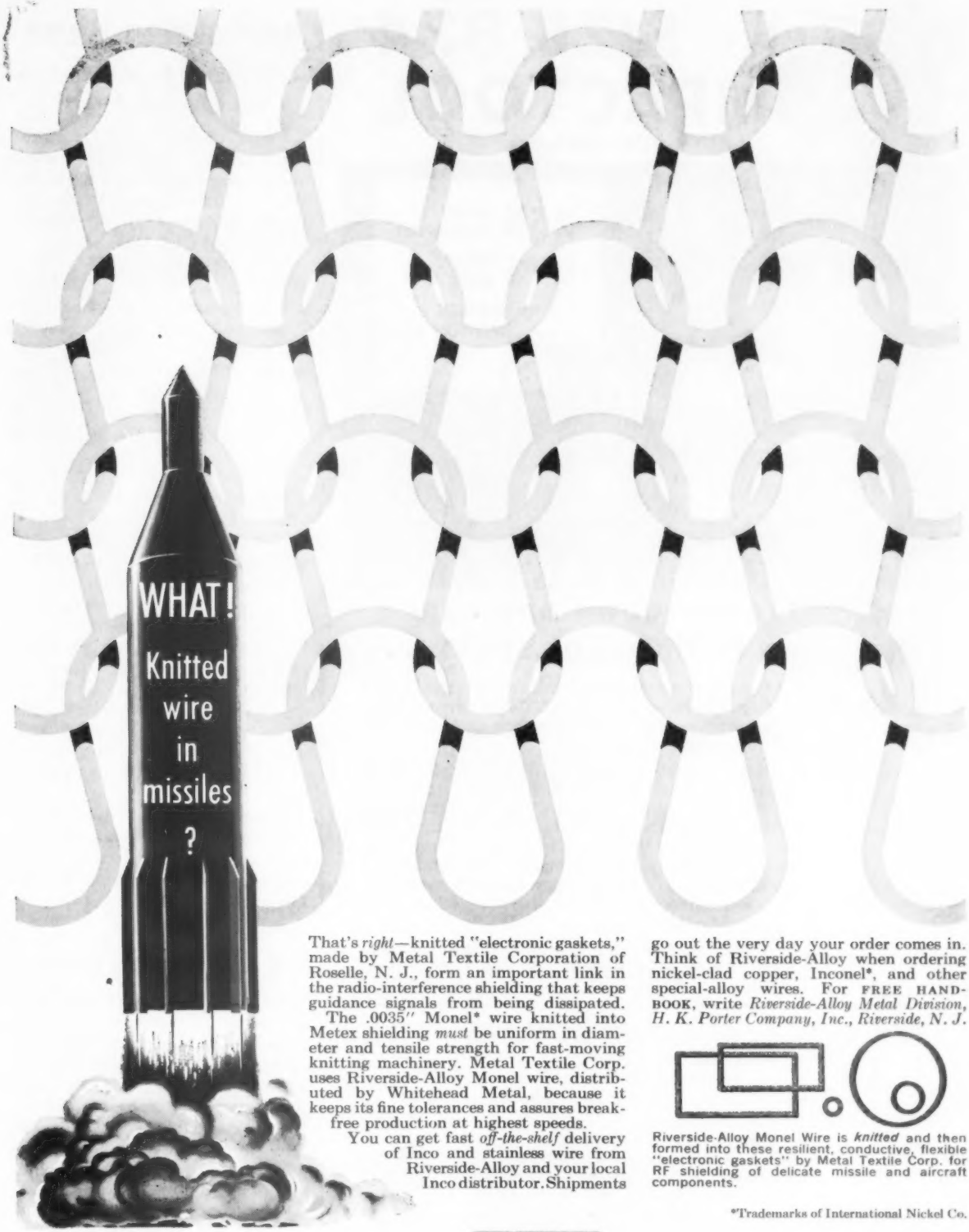
He emphasized the "Golden Rule" and a general awareness of what's going on as a basis of good public relations. Good buys are often ignored because of poor public relations and purchasing agents should strive for more publicity within their own company. "A P.A.'s importance in industry is well-known but this is no reason to let down now," he said.

Group Discussions Big Success At Denver

The Purchasing Agents Association of Denver repeated a meeting which was very successful a few years ago. It consisted of group discussion of buying problems in various classifications such as building materials, large industries, public utilities, and government.

A large turnout took an active part in the discussions and the meeting was extended much longer than had been anticipated.

The standardization committee has also come up with a novel idea for the May meeting. A display, open to any member company, will show how, why, when etc. principles have been applied in their organization to an advantage. Approximate display space for each card will be 2 square feet. The displays will be on view for all members to see at the May meeting.



That's *right*—knitted "electronic gaskets," made by Metal Textile Corporation of Roselle, N. J., form an important link in the radio-interference shielding that keeps guidance signals from being dissipated.

The .0035" Monel* wire knitted into Metex shielding *must* be uniform in diameter and tensile strength for fast-moving knitting machinery. Metal Textile Corp. uses Riverside-Alloy Monel wire, distributed by Whitehead Metal, because it keeps its fine tolerances and assures break-free production at highest speeds.

You can get fast *off-the-shelf* delivery of Inco and stainless wire from Riverside-Alloy and your local Inco distributor. Shipments go out the very day your order comes in. Think of Riverside-Alloy when ordering nickel-clad copper, Inconel*, and other special-alloy wires. For FREE HANDBOOK, write *Riverside-Alloy Metal Division, H. K. Porter Company, Inc., Riverside, N. J.*

Riverside-Alloy Monel Wire is ***knitted*** and then formed into these resilient, conductive, flexible "electronic gaskets" by Metal Textile Corp. for RF shielding of delicate missile and aircraft components.

*Trademarks of International Nickel Co.

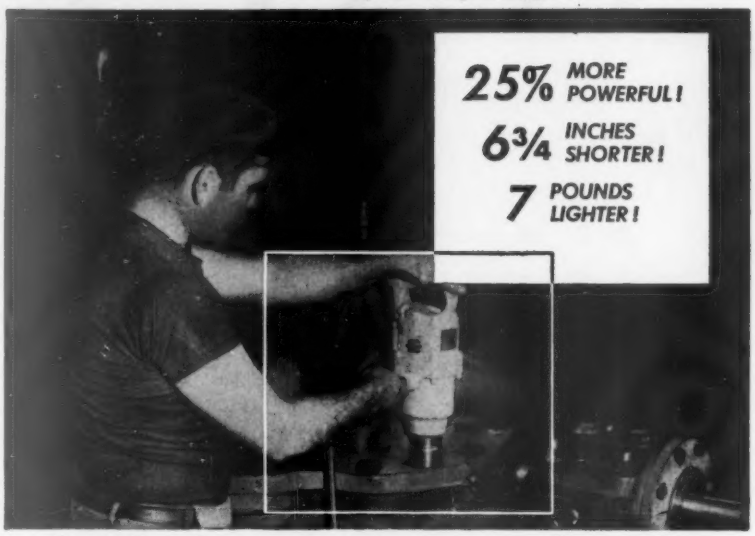
RIVERSIDE-ALLOY METAL DIVISION PORTER **H.K. PORTER COMPANY, INC.**

PORTER SERVES INDUSTRY: with Rubber and Friction Products—THERMOID DIVISION; Electrical Equipment—DELTA-STAR ELECTRIC DIVISION, NATIONAL ELECTRIC DIVISION; Copper and Alloys—RIVERSIDE-ALLOY METAL DIVISION; Refractories—REFRACTORIES DIVISION; Electric Furnace Steel—CONNORS STEEL DIVISION, VULCAN-KIDD STEEL DIVISION; Fabricated Products—DISSTON DIVISION, FORGE AND FITTINGS DIVISION, LESCHEN WIRE ROPE DIVISION, MOULDINGS DIVISION; and in Canada, Refractories, "Disston" Tools, "Federal" Wires and Cables, "Nepcoduct" Systems—H. K. PORTER COMPANY (CANADA) LTD.

For More Information Write No. 261 on Inquiry Card—Page 32

NEW! SIZE 834 IMPACTOOL

(1¼" capacity)



for faster run-down and easier handling in the tight spots . . .

Completely new design and construction of I-R's Size 834 Reversible IMPACTOOL gives you the most powerful, yet easiest-to-handle tool for any nut-running job.

New, compact, vane-type motor with direct drive to hammer provides greater torque and five times faster run-down, without transmitting kick or twist to operator. Small size and light weight make the 834 easy to use in tight, awkward positions. Yet rugged construction and strong alloy housing assure long maintenance-free tool life and efficient operation on even the toughest jobs.

Optional equipment includes Spline Drive Anvil, Swivel Inlet Assembly, Inside Trigger Handle, Side Spade Handle, and Extended Anvils.

$1,250 DIVIDEND DOLLARS

In terms of a *Dividend on Payroll Dollars*, the new I-R Size 834 can help you earn up to $1250 per operator, in one year. Ask your I-R representative for details.

FREE!

WRITE TODAY for Form 5248, describing the I-R 834 in detail. Includes in-use photos, specifications, standard and optional equipment, and accessories. Ingersoll-Rand, 11 Broadway, New York 4, N. Y.

Ingersoll-Rand

Tools plus AIRengineering increase output per man

8-919

For More Information Write No. 262 on Inquiry Card—Page 32

Association News

Kalamazoo Assn. Receives Educational Award

Vice President James Donahue, Allen Electric Company presided over a recent meeting of the Kalamazoo Valley Association of Purchasing Agents in the absence of President Cliff Gallaher.

Emil Sokolowski, Western Michigan University and educational chairman, announced that Kalamazoo received honorable mention from the National Association of Purchasing Agents for its work in helping the local university to establish a course in purchasing at the school of business.

The Business Survey Committee, headed by H. P. Stratton, Miller Lumber Company, reported for the preceding quarter with indicators of employment, profit and backlog showing improvement with prices firm and buying lead time extending.

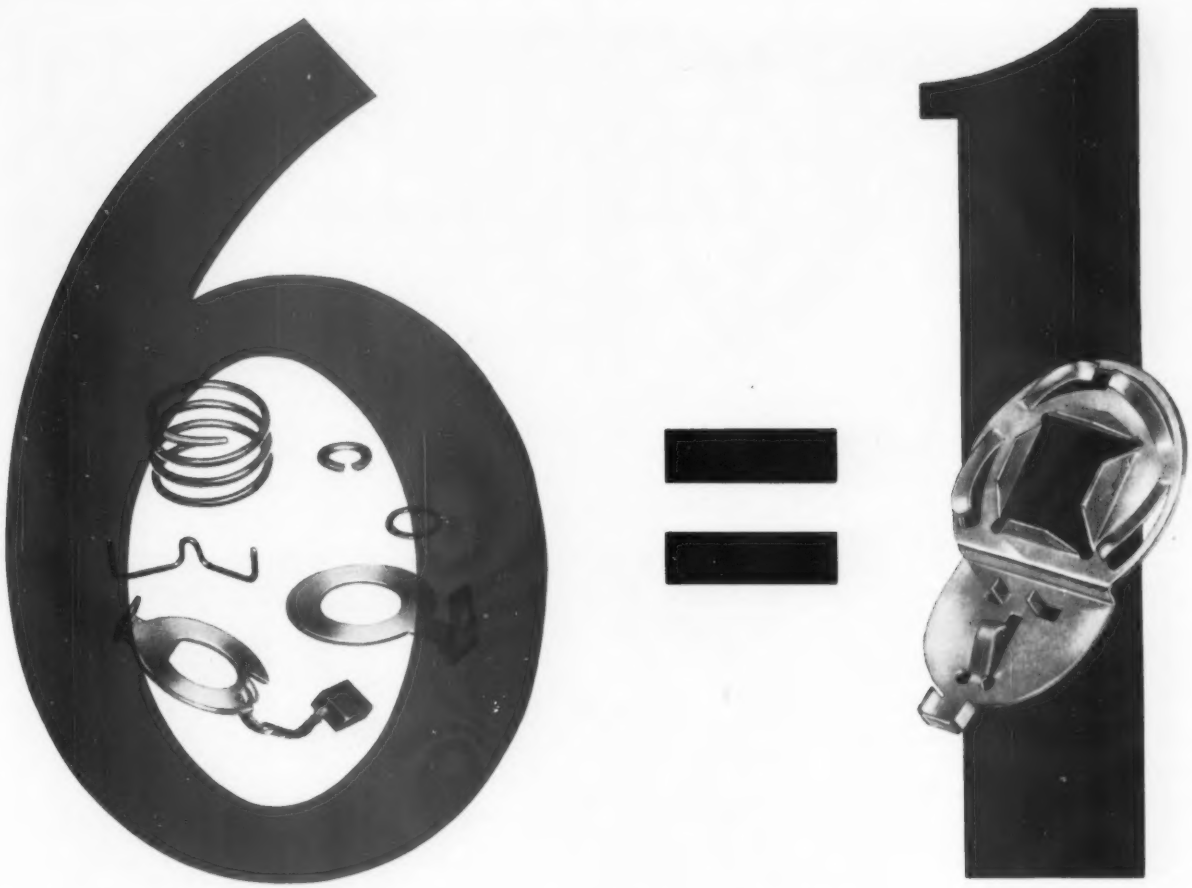
The speaker of the evening, Paul Schreiber, Dow-Corning Company, Midland, Michigan, presented a sound-color film, "You and the Silicones," and showed samples of various products in which the silicones play a part.

The association purchased a new manual on purchasing procedures and has donated this book to the Kalamazoo Public Library.

4th District V.P. Elected

John M. Berry, vice president in charge of purchases of Kennedy Tank & Manufacturing Company was elected Fourth District Vice President of the National Association of Purchasing Agents at the council meeting in Ann Arbor.

Mr. Berry has been a member of the Purchasing Agents Association of Indianapolis since 1936 and has held every office in the local association. He served three terms as national director and has also served on the general publications committee, the commodity reports committee and on several of the national committees.



with re-design 'rithmetic

One flat spring now does the work previously required of the six parts shown—and greatly simplifies assembly, too. This single multi-purpose spring (a) holds a carbon brush in a rheostat, (b) applies pressure on the wire windings, (c) provides friction detent action, (d) acts as a retainer on the rotating shaft.

How did this come about? The maker of the rheostat undertook a complete redesign analysis, called in an A.S.C. Spring Engineer when it concerned the spring.

Early consultation with A.S.C. springmakers in new or redesign projects gives greater range to plans, safeguards against high production costs. Our booklet, "Designing Springs for Performance," may help you. Write for your copy.

5902

Associated Spring Corporation

General Offices: Bristol, Connecticut

Wallace Barnes Division, Bristol, Conn. and Syracuse, N. Y.
B-G-R Division, Plymouth and Ann Arbor, Mich.
Gibson Division, Chicago 14, Ill.
Milwaukee Division, Milwaukee, Wis.
Raymond Manufacturing Division, Corry, Penna.
Ohio Division, Dayton, Ohio
F. N. Manross and Sons Division, Bristol, Conn.
San Francisco Sales Office, Saratoga, Calif.
Seaboard Pacific Division, Gardena, Calif.
Cleveland Sales Office, Cleveland, Ohio
Dunbar Brothers Division, Bristol, Conn.
Wallace Barnes Steel Division, Bristol, Conn.

Canadian Subsidiary: Wallace Barnes Co., Ltd., Hamilton, Ont. and Montreal, Que. Puerto Rican Subsidiary: Associated Spring of Puerto Rico, Inc., Carolina, P.R.

For More Information Write No. 263 on Inquiry Card—Page 32

District of Columbia P.A.'s Increase Membership by 62%

THE PURCHASING Agents Association of Washington, D.C. welcomed 42 new members at its April meeting. The total membership has increased approximately 62% during the year 1958-59.

Increased membership is attributed to an extensive drive by all members. The drive was supplemented by a very effective educational program sponsored jointly by the Association and American University. The course, itself, led to the establishment of a formal program in purchasing being added to the curriculum of the University.

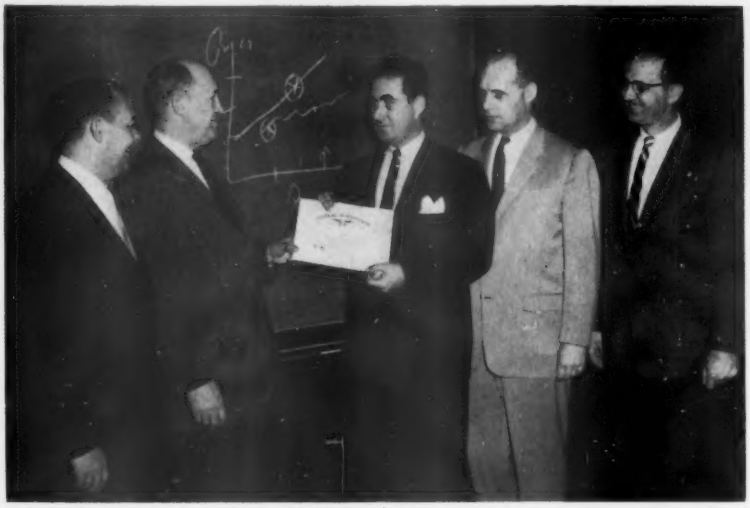
Since various Washington organizations showed interest in the course it was felt that this might be a way to attract new members. An assessment equal to the yearly dues was charged to all non-members who would have otherwise qualified for membership in the association.

In effect, those who signed up for the course also signed up to join the association. Members of the Association were priviledged to attend the classes without charge. Attendance at the five Louis De Rose lectures exceeded 100 every night.

The feature speaker at the April meeting was Harold C. Barnett, associate managing editor of PURCHASING Magazine. His talk was on the subject, "How to Cut Purchasing Paperwork." He advocated simplification of procedures not just to save on the cost of operating a purchasing office, but to provide a better organization to handle purchasing matters with more time for purchasing agents to do a better job of buying.

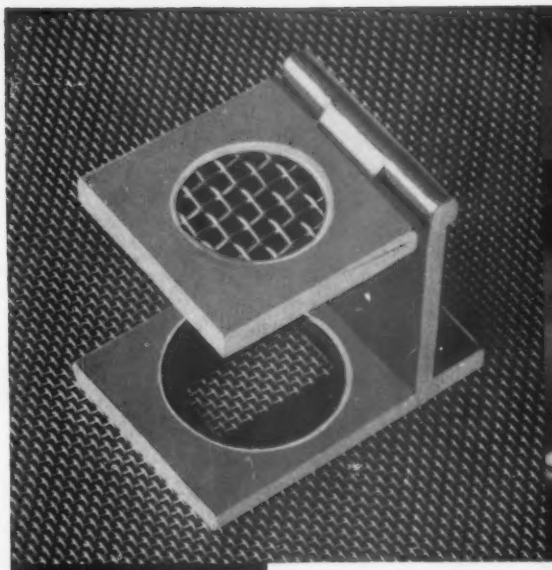
Mr. Barnett emphasized the need for a purchasing manual and for consideration of possible benefits through mechanization. Other points brought out were the values of centralized order writing and other centralized clerical detail, the need for effective filing, and, in larger purchasing operations, a full-time librarian to maintain vendors' catalogs.

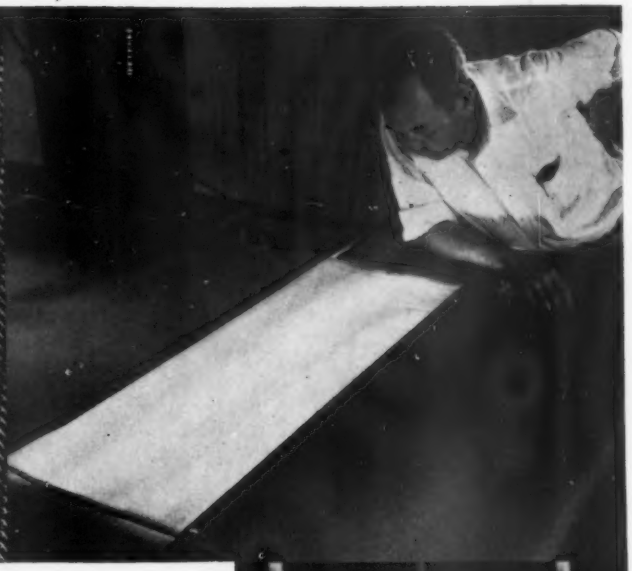
In conclusion, he stressed the need for sufficient, adequately trained personnel in the purchasing activity, but cautioned against seeking additional personnel as a substitute for effective policies and procedures.



John Rooney (left) vice president, and D. A. Cook, president, Purchasing Agents Association of Washington, D. C. with Louis DeRose, who conducted the recently completed purchasing seminar. Next in line: Len Larson, chairman, education committee; George Frediani, national director.

Twenty-four of the 42 new members of the Purchasing Agents Association of Washington, D. C. Third from left in the front row is D. A. Cook, president of the association.





Who counts 'em?

CAMBRIDGE does . . .

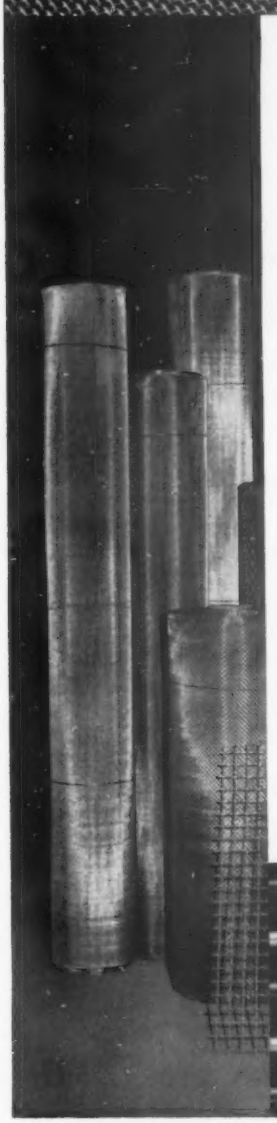
. . . because *exact* mesh count and mesh size are the trademarks of Cambridge INDUSTRIAL WIRE CLOTH.

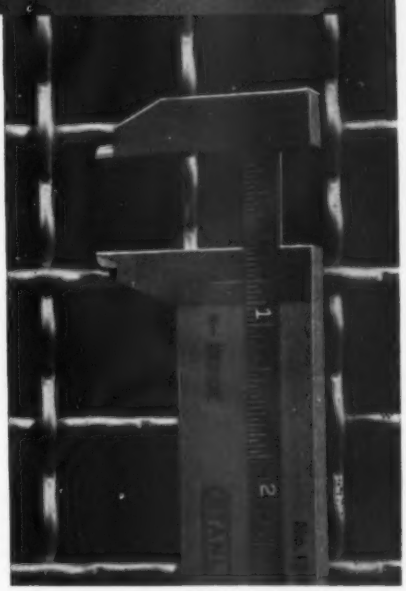
But, quality isn't the whole story. When you call Cambridge for industrial wire cloth, you also get service . . . prompt answers to your inquiries . . . quicker deliveries . . . and an experienced Field Representative who follows up your order to make sure our product is giving you the best possible service. Let us quote on your wire cloth needs. We manufacture wire cloth from any metal or alloy—including titanium—in nine basic weaves. Very likely, we have what you require in our warehouse right now. For samples or more information, call your Cambridge Field Engineer...he's listed in the yellow pages under "Wire Cloth". Or, write for FREE 94-PAGE CATALOG.

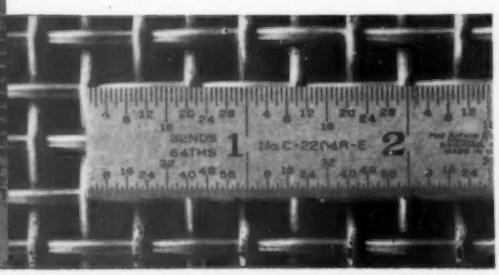
The Cambridge Wire Cloth Co.

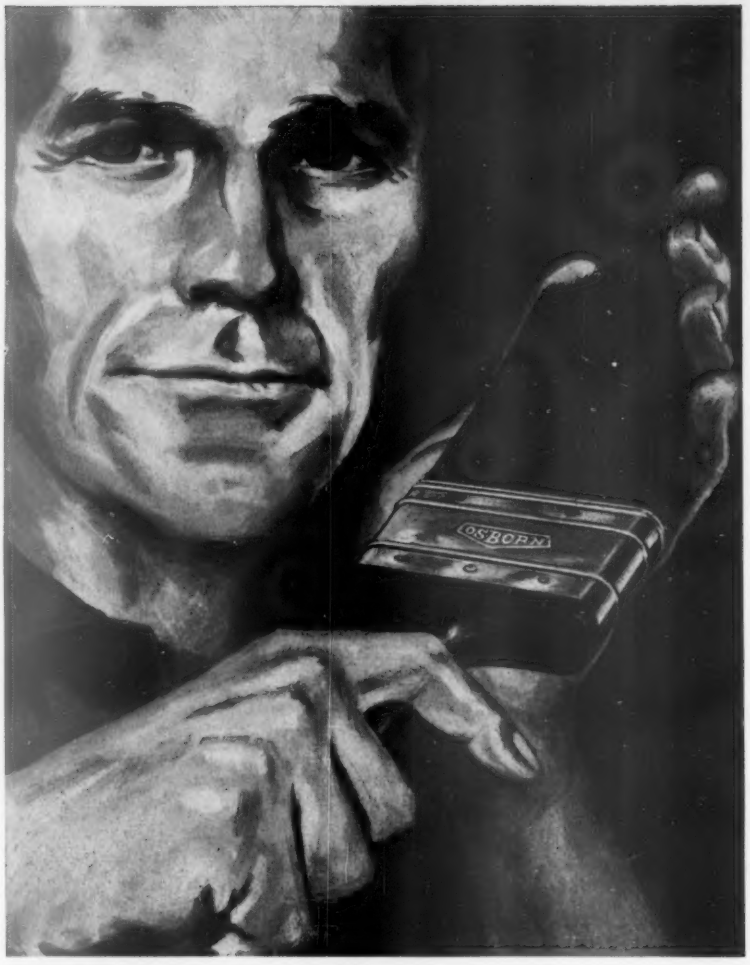
Department AK • Cambridge 5, Md.

Manufacturers of Wire Cloth, Metal-Mesh Conveyor Belts, Wire Cloth Fabrications









EVERY TIME YOU BUY THIS BRUSH... YOUR OWN GOOD JUDGEMENT SHOWS

Today's industrial buyer is a special kind of expert. His job: spot and buy genuine value down the line—big purchase or small. And when it comes to *brushes*—both the men who *buy* and the men who *use* them agree on Osborn.

- The right Osborn *Paint and Varnish Brushes*, for instance, help your crew do jobs more quickly, more easily . . . at less cost.

So to save buying time . . . to cut buying costs . . . to get built-in value automatically everytime—make Osborn your brand for *all* industrial brushes. Choose from a *complete line* of superior:

- Power brushes
- Paint and Varnish brushes
- Maintenance sweep brushes

Full details in the new Osborn 112-page Catalog. Write for your free copy. *The Osborn Manufacturing Company, Dept. U-43, Cleveland 14, Ohio.*

Osborn Brushes

OSBORN POWER, PAINT AND MAINTENANCE BRUSHES • BRUSHING METHODS
BRUSHING MACHINES • FOUNDRY PRODUCTION MACHINERY

For More Information Write No. 265 on Inquiry Card—Page 32

Association News

Standardization Expert Speaks At Tri-City

A recent meeting of the Tri-City Association of Purchasing Agents was of particular interest, not only to purchasing executives but to design engineers as well.

The speaker of the evening was K. A. Cruise, Kansas City Division, Bendix Aviation Corporation. Mr. Cruise is also national chairman of the Value Analysis-Standardization Committee.

The title of his talk was, "Actually Achieving Some Success in Standardization and in Value Analysis in Your Own Company." Mr. Cruise is material manager at a plant that is producing hundreds of different instruments and electronic devices for the Atomic Energy Commission. He had a lot of helpful hints to offer to the Tri-City membership.

Maine PA's Form Assn.

Purchasing agents in the State of Maine recently held an organizational meeting, intent on forming a new association.

The keynote address was given by H. A. Stuhldreher, assistant to vice president, U. S. Steel Corp. The feature speaker was Robert J. Unger, assistant to the president and purchasing agent, Dragon Cement Co., New York, N. Y.

The steering committee who arranged the meeting was: Erling O. Barsness, Path Iron Works; G. Merrill Thomas, Dragon Cement Co.; D. K. Cooper, Northern Chemical Industries.

Purchasing Agents in the Maine area are urged to get in touch with Douglas K. Cooper, Northern Chemical Industries, Searsport, Maine for more information on the new group.

CLASSIFIED ADVERTISEMENT

FOR SALE

5 Carton Stitchers—Some bottom some top. Bliss—Acme & New Jersey—$175.00 up. Send for pictures or come to see them.

The Schneider Printing Company
Palmyra, Pa.

SPS RELIABILITY / *A dynamic standard of predictable performance*

RECOMMENDED SOCKET SET SCREW TIGHTENING TORQUES (in.-lb.)

Screw Size	Unbrako	Set Screw B	Set Screw C	Minimum Differential %
#4	5	3.9	3.5	28
#5	9	7.8	7.4	15
#6	9	7.8	7.4	15
#8	20	14.7	14.5	36
#10	33	26.5	25	25
¼	87	62	60	40
5/16	165	122	125	32
3/8	290	198	225	29
7/16	430	309	350	23
½	620	460	500	24
5/8	1225	1106	1060	11
¾	2125	1540	1800	18
7/8	5000	3660	4600	9
1	7000	5025	6500	8

High torque UNBRAKO socket sets are available as follows: Sizes, #0 through 1 in.; materials, alloy steel and 18-8 stainless steel; Types, plain cup point (microsizes and stainless)—self-locking with knurled cup point (#4 through 1 in.)—self-locking with Nylok (plain cup point).

High Torque UNBRAKO socket set screws seat tighter, up product reliability

Holding power—a vital factor in the selection and application of a set screw—is the result of the seating force developed by tightening the screw. Invariably the tighter a screw is wrenched into place, the greater will be the holding power. Recommended seating torques for High Torque UNBRAKO socket set screws are up to 40% higher than those for ordinary socket set screws. And the cup point, knurled counterclockwise, resists their backing out under vibration.

In addition to greater holding power, dimensional accuracy of length and OD, with consistent physical and mechanical properties from lot to lot, makes high torque UNBRAKO socket screws ideal for automation. Major diameters are held strictly to Class 3A thread tolerance to permit automatic feeding without jam-up. Socket depth and size are highly uniform to permit the driver to engage the socket in a split second and drive the screw home with speed and precision. Threads are fully formed to Class 3A fit to make the whole screw stronger and provide accurate mating. Heat treatment, in atmosphere controlled furnaces, prevents decarburization and provides hardness and strength for long wear.

High torque UNBRAKO socket set screws are stocked by authorized SPS industrial distributors. Ask the one nearest you for complete details. Or write SPS—manufacturer of precision threaded industrial fasteners and allied products in many metals, including titanium. Unbrako Socket Screw Division, STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.

SPS **Jenkintown • Pennsylvania**

Standard Pressed Steel Co. • The Cleveland Cap Screw Co. • Columbia Steel Equipment Co. • National Machine Products Co. • Nutt-Shel Co. • SPS Western • Standco Canada Ltd. • Unbrako Socket Screw Co., Ltd.

For More Information Write No. 266 on Inquiry Card—Page 32

save up to

33 1/3%

with

WAVERLY HI-DRI

Actual tests prove that all-purpose Waverly Hi-Dri oil and grease absorbents will cover up to 33-1/3% more floor space than other similar materials.

Compared to ordinary absorbents, Hi-Dri is lighter in weight and absorbs more. There are more than 37 *million* thirsty granules in every 50 lb. bag.

Translated in terms of money, this means you actually save up to one third of your costs by putting Hi-Dri's volume/weight advantage to good use. What better way to put new economy to work on your maintenance, safety and sanitation program.

Test Hi-Dri under actual working conditions in your own plant, and you'll see what we mean.

Call or write today for a generous free sample.

WAVERLY

PETROLEUM PRODUCTS CO.

1724 Chestnut St., Dept. P

Philadelphia 3, Pa.

For More Information Write No. 267 on Inquiry Card—Page 32

Value Buying

(*Continued from page 79*)

dustry spent about three and one-half billion dollars of its own money on research and development.

Most of the private research done in any industry today is being done by a few progressive manufacturers who bear the leadership load for all the others. The new machines and ideas and principles of these technical leaders spread quickly throughout their industry. Within six months of the introduction of almost any new product or product refinement, other companies will have their own version of the same thing on the market. Sometimes it will be the result of parallel research carried on independently. Most often it will simply be a "Chinese copy" turned out by a competitor who has no research facilities. And almost always those competing products are placed on the market at a lower price than that of the original version. Those companies have spent no money in researching and developing the product. They have no investment to recover. They are spending no money currently researching other products. They have paid no part of the price of progress.

To put it bluntly, the firm that carries on a program of research, development, and technical service can be placed at a serious disadvantage with its competitors who carry on no research and have little in the way of engineering resources. We must break the back of this program by selling what we have to offer in long-range benefits and by further building purchasing statesmanship. To curtail research and engineering would mean stagnation replacing progress.

Put a Dollar Sign on Research

In our opinion the only proper solution to this problem is for the purchasing executives in every industry to recognize, as a matter of formal policy, that they have a stake in and get value received from the research programs of their suppliers. These companies must somehow attribute a value to research and development work and help pay the cost of developing equipment and methods that reduce their own costs and improve their efficiency. Their purchasing executives must somehow put a dollar sign on values which they cannot see or easily measure but which they know very well actually save them money year-in and year-out.

An examination of the elements of our costs makes it quite apparent that our attack on manufacturing costs has been significantly more successful than our attack on material costs. Since the time of Taylor and Gilbreth we, along with the rest of industry, have been concentrating our efforts on reducing the amount of direct labor in our products. Our success is largely a tribute to the ingenuity of the machine tool industry.

The Push-Button Factory

In addition to building bigger, faster, more powerful, more flexible, more specialized machines,

(*Please turn to page 170*)

RAIL AND TRACK EQUIPMENT

You can get everything you need for industrial track and crane runways —with one call to your nearest Foster office. Immediate deliveries from the nation's largest warehouser of rails (both new and relaying), switch material, and track accessories. Send for free catalogs and ordering guides.

L. B. FOSTER CO.

PITTSBURGH 30 • ATLANTA 8 • NEW YORK 7
CHICAGO 4 • HOUSTON 2 • LOS ANGELES 5

For More Information Write No. 268 on Inquiry Card—Page 32

For More Information Write No. 269 on Inquiry Card—Page 32→

This man knows how to use the "Touch of Gold"

He is bringing a product closer to its finished state, adding the "Touch of Gold" by using exactly the correct Norton reinforced wheel to do the best job. To help you bring this value-adding benefit to your product there are many types of Norton reinforced wheels, using different types of reinforcement . . . glass cloth, nylon, cotton and combinations of them. There are resinoid and rubber bonds . . . straight and depressed-center shapes for every grinding, cutting off or slotting job where you need reinforced wheels. And every wheel is a product of Norton research.

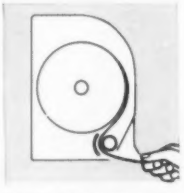
Your Norton Man can bring these "Touch of Gold" benefits to your production. He is a qualified abrasive engineer with broad, practical experience that is backed by Norton's complete line of abrasive products and world-wide resources and services. He can save you production time and money. Call your Norton Man. NORTON COMPANY, General Offices, Worcester 6, Massachusetts.

NORTON
ABRASIVES

Making better products...to make your products better

Steiner controlled towel dispensers

Cut washroom costs three ways



HOW IT WORKS: Towels are in roll. User pulls towel down and tears up. Control mechanism turns roll so another towel is ready for next user. Result: every user gets enough towels but there is no waste.

First: You'll save with Steiner Company controlled paper towel dispensers because *controlled* dispensing cuts towel waste . . . as much as 20 per cent. Second: You'll reduce washroom maintenance costs because cabinet holds about 500 towels . . . coupled with waste cutting, this means supply lasts longer and cabinet has to be refilled less frequently. Third: You can reduce your inventory and free valuable storage space for other supplies. Reason: A case of Steiner roll towels is the same size as a case of folded . . . yet it holds twice as many towels.

Your local janitorial supplier or sanitary paper distributor can help you . . . there is no charge for the dispensers. For free literature please write to Steiner Company, 740 Rush St., Chicago 11, Ill.

STEINER

STEINER COMPANY

740 RUSH STREET, Dept. C-5, CHICAGO 11, ILLINOIS

For More Information Write No. 270 on Inquiry Card—Page 32

Value Buying

(*Continued from page* 168)

the machine tool industry has been making some major breakthroughs that represent revolutionary advancement. An example is the new Kerney & Trecker Milwaukee-Matic where the operations are directed by a prepunched paper tape.

It seems to me that we are now only one step removed from a system for eliminating more steps in this process. Instead of converting computer calculations into drawings and instructions to people why not convert them immediately to paper tape and use them directly as instructions to a machine such as the Milwaukee-Matic.

Doing a little over-simplified dreaming, how about this possibility? An order for a certain size piece of standard equipment is fed to a computer. The computer calculates the dimensions of the parts required and instructs a battery of automatic machine tools what to make and how to make them. One step closer to the push-button factory—at least a push-button feeder department.

Nuclear Power

(*Continued from page* 86)

developmental reactor at Vallecitos, 40 miles east of San Francisco. Based on experience with this small reactor, the company now proposes to complete a 60,000 kw atomic electric plant at Humboldt Bay by mid-1962. It has informed the Atomic Energy Commission that it expects to produce electricity at 8 mills per kw shortly after the plant starts up.

Atomic power is more feasible at Humboldt Bay than elsewhere in the PG&E system. The Humboldt area is somewhat isolated and some of its power is supplied over a 115 mile transmission line. Since oil is more expensive there and additional power will be required by 1962, the 8 mill per kw power will be competitive with power from oil.

In addition to the Humboldt plant, the company is planning a

(*Please turn to page* 174)

For More Information Write No. 271 on Inquiry Card—Page 32→

Allis-Chalmers tackled this motor problem "cold"

Even heavy icing couldn't freeze this motor. An Allis-Chalmers customer required that this open-type *Super-Seal* motor start even though embedded in ice.

Successful tests were conducted in the A-C Motor Laboratories where customers' motor needs point the way to continuous development programs.

Research and testing of this type has established Allis-Chalmers as a pioneer-leader in the motor industry. It has led to the most complete line of integral-horsepower motors; it has led to tremendous acceptance of such A-C developments as *Synduction* and tube-type motors, and now *Super-Seal* motors.

You can benefit from this pioneer-leadership by contacting your A-C representative or distributor, or by writing Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin.

Super-Seal and *Synduction* are Allis-Chalmers trademarks.

Plan to stay ahead... MODERNIZE!

ALLIS-CHALMERS A-C

A-5956-G1

Coming June 8, 1959 . . .

Again this year PURCHASING Magazine will bring you a complete edition on VALUE ANALYSIS

This valuable cost reduction issue will show you

HOW Value Analysis is applied in any purchasing department—regardless of size.

HOW Value Analysis becomes an integral part of the materials management program.

HOW Value Analysis promotes teamwork between purchasing, engineering and suppliers.

HOW Value Analysis training can be made to yield spectacular results.

HOW to determine if there is a need for a full-time analyst.

HOW a Value Analysis program can be organized to get best results.

In addition . . . this issue will include over

300 actual case histories of Audited Savings classified for easy reference into 8 product categories: Production Tools, Component Parts, Materials, Electrical Equipment, Packaging and Shipping, Materials Handling, M.R.O. and Safety Supplies and Office Supplies.

Mail this coupon to:
Paul V. Farrell
PURCHASING Magazine
205 East 42nd Street
New York 17, N.Y.

Please reserve for me.....additional copies of your June 8, 1959 APPLIED VALUE ANALYSIS edition at the special pre-publication price of $1.00 per copy. (Regular price of this edition is $1.50 per copy).

☐ Bill me.
☐ Payment enclosed.

NAME .....
TITLE .....
COMPANY .....
ADDRESS .....

Save 33-1/3 off the regular price!

Order your extra copies NOW! . . . at the special price of $1.00 per copy. Regular price for this edition will be $1.50 per copy. Take advantage of this limited one-third saving offer!

Fast new Signode heavy-duty tool

at least
Saves this much
strapping

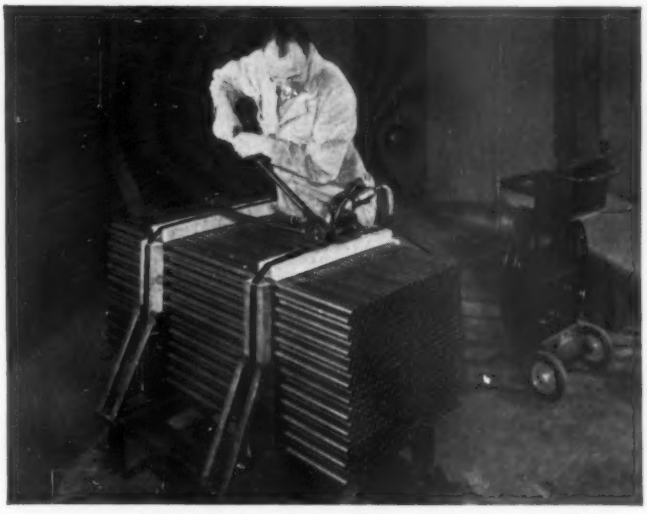
every time it's used

The FN-114 is the first air power feed wheel heavy-duty tensioning tool. It is fast and easy to use. In addition to saving time, it eliminates waste in the curl of strap which, until now, has been a necessary evil in applying 1¼-inch strapping with windlass type tools.

Additional savings come from the fact that the FN-114 takes strapping directly from the dispenser—takes out all the slack *before* the strapping is cut off by a quick stroke of the handle.

The FN-114—like other Signode heavy-duty tools—is available on an annual rental or single payment basis. Let us arrange a demonstration on your premises at your convenience. Just write or call. No obligation.

Air power tensions 1¼" strapping fast, pulls as much as 3000 pounds of pre-set tension every time. Feed wheel permits unlimited take-up of slack.



The powerful FN-114 holds the tension in the strapping while the operator applies the seal, using a Signode Model C tool. Signode heavy duty air-powered sealers are also available.

New 1¼" seal has open flange to permit fast, easy placement. This seal or regular thread-on seal can be lithographed with your company name, trademark, and colors.

First in steel strapping

SIGNODE STEEL STRAPPING CO.

2676 N. Western Avenue, Chicago 47, Illinois

Offices Coast to Coast. Foreign Subsidiaries and Distributors World-Wide
In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto

For More Information Write No. 272 on Inquiry Card—Page 32

Make your next connection with

asg

UNIVERSAL JOINTS

They are made to provide smooth, more efficient transmission of power and are available from stock in 13 sizes with bored or solid hubs ranging from .375" to 4.000". Special bores, bores with keyways or setscrews are available upon special order.

The close limits to which all parts are held assure maximum load carrying capacity with durability and long life. All parts are made of preheat-treated alloy steel and are precision ground to insure high quality and interchangeability of components. Joints with hub diameters of .750" and larger have a self-closing snap ball oiler while the small pin is held in place with a self-locking snap ring. The snap ring simplifies assembly and disassembly.

Send today for Bulletin No. 527 describing the full line of ASG Universal Joints available from your nearest distributor.

AMERICAN STOCK GEAR DIVISION
PERFECTION GEAR COMPANY **HARVEY, ILLINOIS, U.S.A.**

For More Information Write No. 273 on Inquiry Card—Page 32

Nuclear Power

(*Continued from page* 170)

200,000 kw nuclear power plant "somewhere in the Bay area".

Experimental Reactor

Elsewhere in California, the Southern California Edison Company is taking the heat output of an experimental reactor at Santa Susana, about 30 miles from downtown Los Angeles, and converting it into power.

The reactor itself was built by Atomics International. Experience gained here will be used in building several atomic power installations ranging in size from an output of 12,500 kws to 75,000 kws.

Some reactor designs appear more practical for the immediate future than others, but experiments are taking place with various types. Among the fuels being used are slightly enriched uranium, fully enriched uranium, a combination of uranium and thorium, uranium oxide pellets, and metallic uranium.

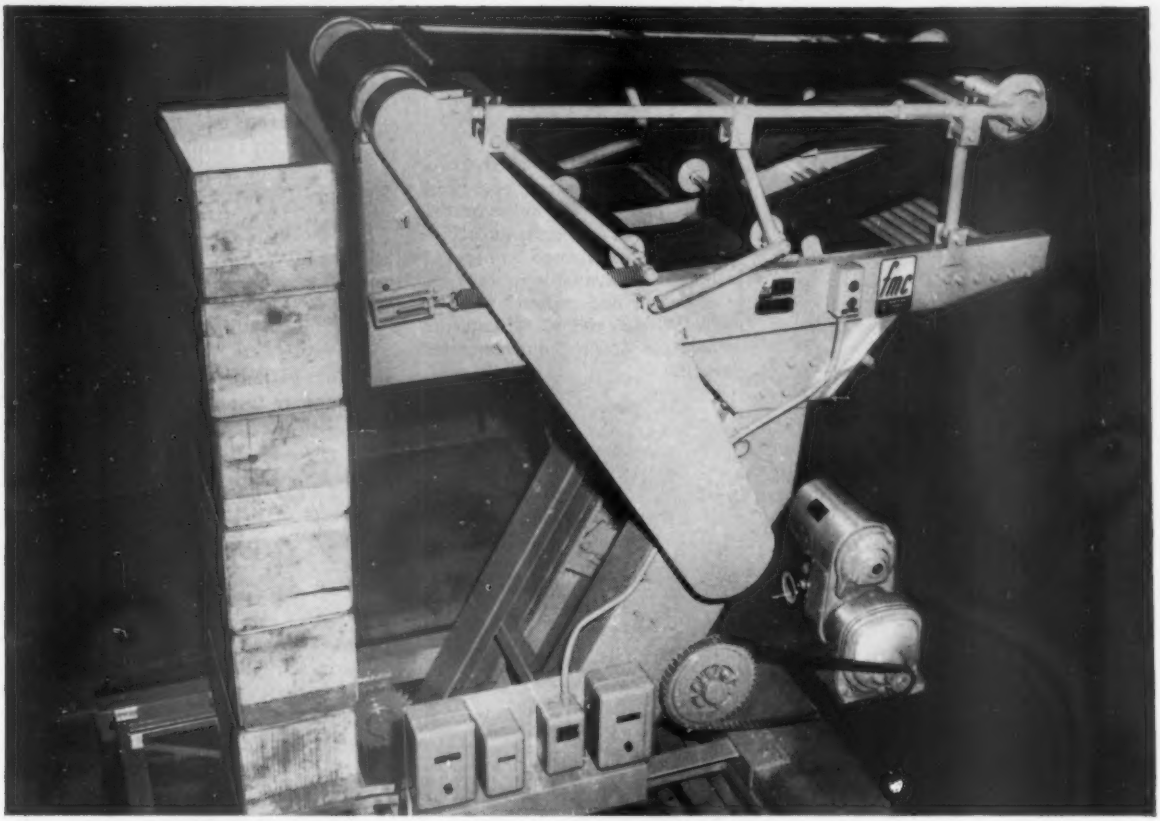
Some reactors use liquid sodium as a coolant, while boiling water, pressurized water, and organic fluids are used by others. One plan calls for a gas cooled reactor like the kind used in Great Britain

International Exchange

Atomic power plant specialists in the domestic private utilities are keeping abreast of the latest developments abroad. There is also an interchange of information among the various American companies.

From atomic power specialists who have had contact with their counterparts in the Soviet Union, Great Britain and France come some interesting deductions. The Russians have followed practically the same approach toward the development of power from nuclear fuels as American firms. They are building many different types of reactors and experimenting with various processes. On the other hand, the British are gambling solely on one specific type of reactor—a gas cooled type.

(*Please turn to page* 176)



"BECAUSE RELIABLE SPEED CONTROL IS VITAL..."

FOOD MACHINERY & CHEMICAL CORPORATION SPECIFIES STERLING SPEED-TROL VARIABLE SPEED DRIVES!

Designed to handle a varying load of from 8 to 24 boxes of fruit per minute, Food Machinery's Model 384000 Series Automatic Stack Elevating Box Dumper is powered by a Sterling Speed-Trol Variable Speed Drive for accurate control of operation throughout the range of packing requirements.

"We have specified Sterling Speed-Trols because reliable speed control is vital in equipment of this type," says E. A. Verrinder, Chief Engineer of Food Machinery's Packing Equipment Division. "Our machine is designed to adjust the flow of fruit to accommodate varying quantities of incoming fruit, and to match the flow of fruit to the number of workers on the processing line. Through the Speed-Trol's infinite control of speed, speed can be quickly, easily and accurately changed as required.

"Our long and successful experience with Sterling Speed-Trols has proven to us... and to our customers... that these variable speed drives provide the dependability and efficiency required for our packing equipment."

Only STERLING SPEED-TROL provides these features for reliable speed control:

- Positive coordinated control of both pulleys—"no springs."
- Maximum pulley life because:
  (1) variable pulleys ride on hardened, chrome-plated, precision-ground, keyed shafts;
  (2) large grease reservoirs provide a film of protecting lubricant.
- Longer belt life...no additional load from spring.
- Greater safety...No injuries from spring flying loose during maintenance.

For additional information about the unique advantages of Sterling Speed-Trol, ask for your free copy of Bulletin 195. Write to:

STERLING
ELECTRIC MOTORS, Inc.
5401 TELEGRAPH ROAD • LOS ANGELES 22, CALIFORNIA

Offices and stocks in all principal cities. Over 400 distributors throughout the country to serve you.

For More Information Write No. 274 on Inquiry Card—Page 32

SMALL PRODUCTION RUNS OF PLASTIC PARTS AT LOW COST

Regardless of the size, shape or quantity requirements of your product, we can provide pilot or test market runs at very economical cost. Experienced craftsmen and special facilities also available to work out your design and production problems. Write us today! All inquiries receive our prompt and interested attention.

custom molders of the unusual

STANDARD PLASTICS Company
INCORPORATED

NEW YORK OFFICE 303 FIFTH AVENUE TEL. MURRAY HILL 6-0327
MAIN OFFICE AND FACTORY 61 WATER STREET TEL. 1-1940
ATTLEBORO, MASS.
For More Information Write No. 275 on Inquiry Card—Page 32

SPECIAL RIVETS
like some of the samples shown here . . . or the more commonly used tubular and split rivets . . . they're all alike to the American Rivet Co. And always—our own special brand of quality and service that gets you what you want when you want it.
THE AMERICAN RIVET CO., Inc.
849 N. Kedzie Ave., Chicago 51, Ill.
Write for price list. For specials, send specifications for prices.
AMERICAN RIVETS
BUY AMERICAN Tubular and Split RIVETS

For More Information Write No. 276 on Inquiry Card—Page 32

Nuclear Power

(*Continued from page 174*)

The reason for the difference in approach is this: neither the U.S. or Russia has any really pressing needs for nuclear-fueled power—and so there is room for experiment and development. Britain, however, has an immediate and desperate need and must concentrate its efforts in one field.

The American power industry has picked up the challenge of nuclear power. From the experience to date, it expects that efforts exerted to build nuclear power plants will bring dividends in the future.

Copper Alloys

(*Continued from page 84*)

mainly copper and tin. Very small percentages of phosphorus are added in the melting of the alloy, primarily to deoxidize the melt and remove impurities. These minute additions of phosphorus result in a metal having extraordinary mechanical properties. These alloys have superior resilience and resistance to fatigue, excellent hardness and strength—characteristics admirably fitting them for spring products. They also have exceptional resistance to corrosion.

Skillful adjustment of the alloy components in phosphor bronze by the mill, and control of the reduction and annealing processes, result in metal with fine grain, high strength and high elastic limit, good resistance to fatigue, high resistance to shock, wear, abrasion and season cracking, and a low coefficient of friction. These properties make it possible to use the alloy under very severe operating conditions. For screw machine operations lead additions up to 4% improve machinability greatly.

Phosphor bronze, 5% (A), contains 5% tin, 95% copper. In the proper tempers the alloy is suited for forming, bending, stamping and moderate deep drawing. In spring temper it is used for springs of ordinary tension. Typical uses are bridge bearing plates, shafting, pump rod, welding rod, springs, switch parts, diaphragms,

(*Please turn to page 178*)

SCOTCH BRAND
SCOTCH BRAND
SCOTCH BRAND
SCOTCH BRAND
SCOTCH BRAND
SCOTCH BRAND
SCOTCH BRAND
SCOTCH BRAND
SCOTCH BRAND
SCOTCH BRAND
SCOTCH® BRAND
SCOTCH BRAND

Up a tree about tape quality?

No matter how you look at it, tape quality *is* important. And the down-to-earth fact is that the whole question can be resolved with a habit: always specify "SCOTCH" Brand on your pressure-sensitive tape orders.

You consistently get top quality, roll after roll, with "SCOTCH" Brand Pressure-Sensitive Tapes. Why? Because 3M's manufacturing standards have no equal in the pressure-sensitive tape industry. That means you always get consistent performance, consistent results on the production line with "SCOTCH" Brand. So why risk a tape failure when "SCOTCH" Brand costs so little?

What's more, assortable "SCOTCH" Brand gives you the *right* tapes for your needs at the lowest possible cost. "SCOTCH" Brand also gives you "3M-MATIC" Taping and Dispensing methods . . . to match the right tape to the best dispensing equipment. And, don't forget, 3M can give you complete technical information on tape performance and methods through industrial tape specialists and expertly trained distributors.

Better specify "SCOTCH" Brand—and stick with it. *For complete information, contact your nearest distributor, or write: 3M Co., 900 Bush Ave., St. Paul 6, Minn., Dept. RF-59.*

"SCOTCH" BRAND TAPES
TAPE-O-RAMA Contest
135 prizes . . . write for details
FEBRUARY 1—JUNE 30, 1959

When tape costs so little, why take less than "SCOTCH" Brand?

"SCOTCH" is a registered trademark for the pressure-sensitive adhesive tapes of 3M Co., St. Paul 6, Minn. Export: 99 Park Ave., New York 16. Canada: London, Ontario.

MINNESOTA MINING AND MANUFACTURING COMPANY
. . . WHERE RESEARCH IS THE KEY TO TOMORROW

3M COMPANY

For More Information Write No. 277 on Inquiry Card—Page 32

NORPLEX

INDUSTRIAL LAMINATES? PRINTED CIRCUITS?

SPECIFY NORPLEX®

for complete service from a single reliable source

NORPLEX offers a complete range of NEMA grade laminates . . . industrial type thermosetting laminates from economy punching grades to MIL-P specifications quality . . . true cold punch materials, NORPLEX economy grade 106 and U/L approved circuit grade XXXP-925 . . . copper clad laminates . . . completely fabricated printed circuits. In fact, NORPLEX can meet every requirement, for both base material and circuit, as well as fabricated parts from most any sheet material grade. And NORPLEX gives you a big plus in service: special handling to meet rush requirements.

New, free brochure just off the presses! Write for your copy.

NORTHERN PLASTICS CORPORATION
La Crosse, Wisconsin, Dept. C60

Sales Offices in principal markets:

Los Angeles, San Francisco, Chicago, Detroit, South Whitley (Ind.), Cleveland, Chattanooga (Tenn.), Sturgis (Mich.), Minneapolis, St. Louis, New York, Rochester (N.Y.), Philadelphia, Dallas.

For More Information Write No. 278 on Inquiry Card—Page 32

At P·I·E People Spell the Difference!

Jack Sanders, Traffic Manager of Gerber, prescribes . . .

Fast Relief for Traffic Headaches!

Day in and day out, Jack Sanders matches shipments of baby food to the feeding habits of millions of babies—in ten thousand cities and towns from New York to San Francisco.

It's a demanding job but he's found that he can count on P·I·E Salesman Harvey Bishop with confidence for there's no schedule too complex . . . no load too large or small . . . no town too hard for P·I·E people to reach.

From salesman to clerk to dispatcher to driver there's a loyal determination to "deliver the goods . . . in good shape, in good time." *At P·I·E people spell the difference!*

PACIFIC INTERMOUNTAIN EXPRESS

TERMINALS & OFFICES IN PRINCIPAL CITIES. GENERAL OFFICES P·I·E BLDG., 14TH & CLAY STREETS, P.O. BOX 958, OAKLAND 4, CALIFORNIA

P·I·E Delivers the Goods in good shape . . . in good time!

For More Information Write No. 279 on Inquiry Card—Page 32

Copper Alloys

(Continued from page 176)

bellows, fuse clips and electrical contacts; also fasteners, cotter pins, bolts, nuts, and hardware and fittings in the chemical and papermaking industries where corrosion is a problem.

Phosphor bronze, 8% (C), containing 8% tin, is used for parts needing special hardness and stiffness combined with the ductility to stand severe forming. The alloy has greater spring life and higher elongation than the 5% alloy and will withstand even more severe service conditions.

Free-cutting phosphor bronze is an 88% copper alloy that contains 4% each of tin, lead and zinc. A good cold-working alloy, it is used where machining or drawing may be required in a high-tensile copper alloy. Typical applications include bearings and bushings, gears and pinions, shafts, thrust washers and valve parts.

Silicon Bronze

Copper-silicon alloys are characterized by high strength and exceptional resistance to corrosion —particularly to acids. Identified as silicon bronzes, the alloys contain from 0.8 to 3.6% silicon, as well as manganese, zinc, iron, lead, nickel or tin.

Depending on the alloy, the silicon bronzes may be worked either hot or cold. But if they are to be hot-rolled, extruded or forged, lead content must be limited to a trace.

In the annealed condition, silicon bronzes have tensile strengths somewhat higher than the brasses. As cold-drawn, they attain high strengths without becoming brittle. In the full-hard condition, the higher silicon alloys attain strengths more than twice that of copper with the same amount of cold-work.

The corrosion resistance of the silicon bronzes suits them for service in many corrosive media. The alloys are widely specified for processing equipment handling beet and cane sugars, for pulp and paper mill equipment, sewage treatment plants, reservoirs and waterworks. Welded tanks and

(Please turn to page 180)

GENERAL

STUD
BORE
FLANGE
BEARINGS

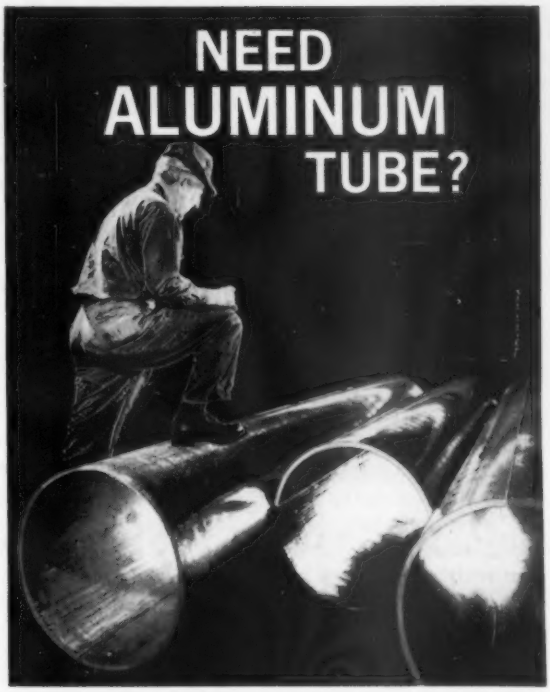
For dependable service and fast delivery, choose General low-cost, unground ball bearings and bearing assemblies.

GENERAL BEARING COMPANY

General Bearing Co., Inc. 43 Roselle St., Mineola, N. Y.

For More Information Write No. 280 on Inquiry Card—Page 32

NEED ALUMINUM TUBE?



Need formed and welded aluminum tube? Alcoa's Jobbing Division can form and weld aluminum tube in a wide range of wall thicknesses, diameters and lengths to meet your requirements. If corrosion resistance, light weight and strength are important in your tube requirements, formed and welded tube of Alcoa® Aluminum is your answer. Our complete engineering-fabricating facilities can give you high-volume production or custom-engineered jobs. And all of our welding facilities meet the requirements of aircraft, military and code specifications. These facilities can go to work for you.

FREE TO MANUFACTURERS. In addition to such "standard" items as formed and welded tube for industry, Alcoa's Jobbing Division has the world's finest aluminum fabricating facilities for subcontracting any aluminum components to your order for anything you make. Sixteen-page, free booklet describes how these facilities can save you tooling costs, lighten your production load and generally cost you less than if you shouldered the whole job yourself. For your copy, write or mail the coupon.

ALCOA ALUMINUM

Your Guide to the Best in Aluminum Value

For Exciting Drama Watch "Alcoa Theatre," Alternate Mondays, NBC-TV, and "Alcoa Presents," Every Tuesday, ABC-TV

ALUMINUM COMPANY OF AMERICA
1868-E Alcoa Building, Pittsburgh 19, Pa.

Please send my free copy of *Alcoa Aluminum Fabricating Facilities.*

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE ____ STATE _____

For More Information Write No. 281 on Inquiry Card—Page 32

Copper Alloys

(*Continued from page* 178)

unfired pressure vessels are natural applications, as well as automatic hot water heaters, gasoline tanks, process vessels, brew kettles and vacuum tanks.

Aluminum Bronzes

Aluminum bronzes make up a series of copper alloys containing 5 to 12% aluminum, together with elements such as silicon, manganese, nickel and iron. This series of alloys offers the purchasing engineer a very wide range of useful physical, mechanical and fabricating property combinations. In brief, these alloys offer exceptional resistance to corrosion and corrosion fatigue, coupled with good strength, hardness and wear resistance. They also resist scaling at high temperatures, which impairs heat transfer efficiencies.

The aluminum bronzes containing from 5 to 8% aluminum have good cold-working and hot-working properties. Those containing from 8 to 12% aluminum do not cold-work well, but they do hot-work readily. In the latter, nickel may be included to improve strength and to refine the grain structure. Silicon may be added in place of some of the aluminum to improve machinability.

Aluminum-silicon bronze is an exceptionally high strength alloy, that contains 91% copper, 7% aluminum and 2% silicon. This alloy machines readily. It is good also for hot-working, and is used extensively for forging rod. The corrosion resistance of the alloy is such as to make it especially useful in the presence of corrosive liquids and gases—as in sewage plants and pulp and paper mills.

Nickel Silvers

Nickel silvers are alloys of copper, zinc and nickel, with colors ranging from a silvery white in the high-nickel alloys, to a soft ivory white in the low-nickel alloys. These alloys are essentially brasses in which nickel is substituted for part of the zinc. Depending on the alloy and temper, they are highly ductile and malleable, and can be readily drawn, stamped, formed, spun, upset, forged, extruded, and machined. The nickel silvers offers strength and toughness, resistance to corrosion and wear, and a uniform grain structure.

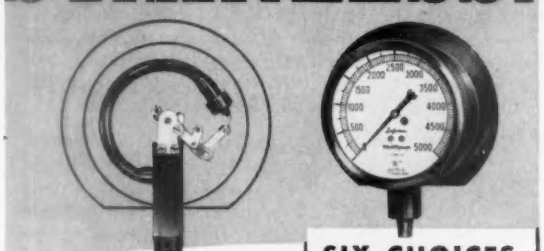
Nickel silver is customarily designated by its copper and nickel content, in that order. The balance of the alloy is usually zinc. In some alloys, a small percentage of lead is included to improve machinability.

Cupro Nickels

Cupro nickels are alloys of copper and nickel, usually containing small but significant percentages of manganese and iron. The nickel content may range from 2.5 to 30 per cent, although the alloys used most commonly are those containing 10 and 30 per cent nickel.

These alloys are particularly resistant to stress corrosion and corrosion fatigue.

STAINLESS!



—from inlet to tip

Now the superlative Mastergauge is available in a wider range of corrosion resistant tubes and sockets than any other pressure gauge.

Check the adjoining list. And remember that tube socket and tip are fused into one piece by the exclusive Marsh "Conoweld" process.

Marsh alone combines the "Conoweld" construction, the copper-clad "Marshalloy" case, the finer Mastergauge movement, the Marsh "Recalibrator", the new "Safecase." Ask for data covering your specific needs.

SIX CHOICES
of tubes and sockets

4130 alloy steel tube with alloy steel tip and socket.

403 stainless steel tube with alloy steel tip and socket.

403 stainless steel tube with 416 stainless tip and socket.

316 stainless steel tube with alloy steel tip and socket.

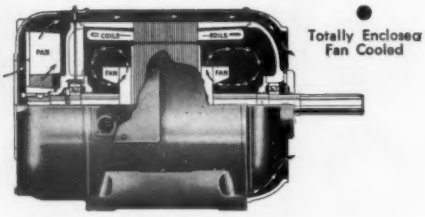
316 stainless steel tube with 303 stainless tip and socket.

"K" Monel tube with Monel tip and socket.

MARSH INSTRUMENT CO., *Sales affiliate of Jas. P. Marsh Corp.* Dept. G, Skokie, Ill.
Marsh Instrument & Valve Co., (Can.) Ltd. • 8407 103rd St., Edmonton, Alberta, Can.

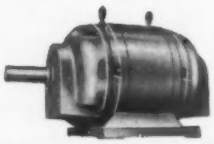
MARSH "THE STANDARD OF ACCURACY"

For More Information Write No. 282 on Inquiry Card—Page 32



Custom Built . . . But NOT Custom Priced!

Here is the most successful development in Air Cooled Motors. Reduces friction 75% — cuts power costs. Handles any power load emergency without damage to motor. Always cool running for continuous service in high temperatures. Squirrel cage induction, high torque, low starting current. Fully ball bearing and quiet running too.



Yes, Electric POWER at its Money-Saving BEST — by VALLEY

WRITE FOR DESCRIPTIVE LITERATURE

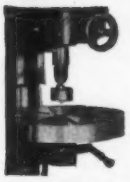
● Other Models

Type SN polyphase, High Torque, constant speed, continuous duty, squirrel cage induction.

Type AN single phase, constant speed, repulsion start, induction run, continuous duty.

VALLEY ELECTRIC CORPORATION
4221 Forest Park Blvd. • St. Louis 8, Mo.

For More Information Write No. 283 on Inquiry Card—Page 32



Saw Large Holes thru sheet or plate

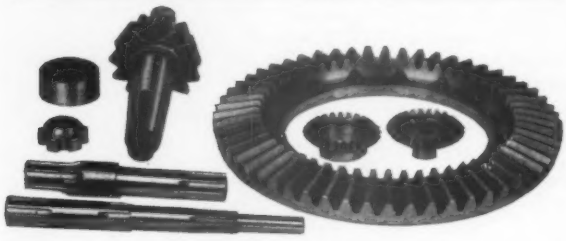
MARVEL High-Speed-Edge Hole Saws (with high-speed-steel cutting edge integrally welded to tough alloy steel body) provide fast, economical means of sawing out holes from 5/16" to 6" diameter through steel up to 1 1/8" thickness. Extra cutting quality and high-speed-steel, self-aligning, double drive pin arbors give strength for use on drill presses, lathes and portable tools, greatly increase the hole size capacity of small tools. Last longer and cut faster with safety.

Write for Hole Saw Catalog Sheets.

MARVEL *Metal Cutting* SAWS
Better Machines–Better Blades

ARMSTRONG-BLUM MFG. CO.
"The Hack Saw People"
5700 Bloomingdale Ave. Chicago 39, U. S. A.

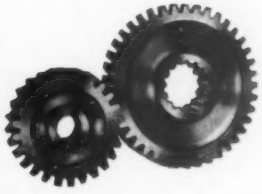
For More Information Write No. 284 on Inquiry Card—Page 32



ADAMS GEARS

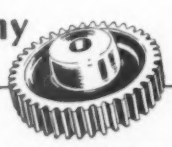
are made exactly to your specifications

Please send prints. We will submit a prompt quotation on the quantities you specify. Write to The Adams Company, 1942 Byer St., Dubuque, Iowa



The ADAMS line—
- Spur Gears
- Helical Gears
- Bevel and Miter Gears (Straight or Coniflex)
- Worms and Worm Gears
- Internal Gears (Spur or Helical)
- Sprockets
- Ratchets
- Racks
- Splined Shafts (Parallel key or involute)
- Lead & Feed Screws
- Shaved Tooth Gears (Spur or Helical)
- Ground Thread Worms

The ADAMS Company
Dubuque, Iowa, U. S. A.
ESTABLISHED 1883



Gears made to your exact specifications

For More Information Write No. 285 on Inquiry Card—Page 32

Hex socket and Multiple-Spline socket

Bristol Dyna-Mites—miniature, No. 0, 1, 2 and 3, button-head and flat-head socket screws

Here's news for designers of precision equipment—electronic components—missile parts.

Precision Bristol button-head and flat-head socket screws are now available in smaller standard stock sizes than ever before—down to No. 0, in heat-treated alloy and stainless steel (other metals on special order).

Bristol is the first socket screw manufacturer to offer these tiny button-head and flat-head socket screws, aptly named "Dyna-Mites," as stock items—thanks to increasing demand from manufacturers of a wide variety of precision equipment. Larger sizes (to 3/4" for flat-head and 5/8" for button-head) have been standard items with Bristol for many years.

The new button-head and flat-head screws will supplement Bristol's already extensive line of miniature socket cap and set screws in sizes down to No. 0, 1, 2, 3—long a Bristol specialty. They feature the same superior holding power under shock and vibration, can be wrenched up tighter and loosened, time after time, without damage to the socket. And they're made under the same rigid, exhaustive quality-control requirements.

Get complete data on these tiny Bristol Dyna-Mite button-head and flat-head socket screws from your authorized Bristol socket screw distributor, or write to the address below. A.9.4

Precision socket screw manufacturers since 1913
Bristol's Hex Socket Screws
Bristol's Multiple-Spline Socket Screws
*Made in sizes as small as No. 0 in Alloy Steel and Stainless Steel. Cap screws up to 1½" diam.
THE BRISTOL COMPANY
Socket Screw Division
Waterbury 20, Conn.

Come in and see us in Booth 1133 at the Design Engineering Show

For More Information Write No. 286 on Inquiry Card—Page 32

Employment Service

Experience: Five years extensive purchasing experience with major chemical company, including centralized raw material buying, plant equipment and supplies buying, purchasing research, cost reduction, negotiation and administration. To change, require challenging position to utilize maximum potential.
Education: M.B.A. degree, industrial purchasing and marketing major (2-year N.Y.P.A.A. Scholarship). B.A. degree, Chemistry major.
Will relocate.
Write: Box 400

Experience: Six and one half years procurement experience with aircraft firms including expediting, buying, and supervision. Presently a section chief in electronics but have handled subcontracting, castings and other raw material, supplies, etc. Two years as time study engineer and five and one half years as Army officer. 34 years old.
Education: B. S. Degree in Business Administration, special courses in purchasing and management.
Will relocate—prefer East or West coasts excluding New York City and Los Angeles County.
Write: Box 396.

Experience: One and one-half years as divisional purchasing agent for company with multi-plant operation. Complete responsibility for purchasing function plus inventory control, receiving, and stores. Buy chemicals, steel stampings, finished parts MRO, and fabrications. Sixteen years as purchasing assistant for machine tool manufacturer. Experience in all phases of purchasing: finished parts, castings, capital equipment, MRO, and printing. Positions held: expediter, buyer, and assistant to the purchasing agent.
Education: Degree: BBA in Management. Purchasing Agent's Association courses. Special training in equipment analysis with emphasis on MAPI Formula method.
Will relocate.
Write: Box 397

BUYERS

National manufacturer located in East has opening for two buyers, one experienced in purchase of metal stampings and raw materials, other experienced in purchase of packaging materials and specialty paper products. Age 30 to 40 years. Send resume and picture. Indicate present salary. Write: Box 518.

Experience: Presently employed. 16 years buying major capital equipment and awarding contracts for multi-million dollar plant expansion, involving daily contact with all engineering and architectural functions. Complete familiarity with material handling equipment, newest types of forced hot water boilers, I.D.P. computers.
Education: Two years college night extension courses industrial purchasing and electronics.
Will relocate.
Write: Box 394

Listings in this department are offered without charge. Both purchasing department personnel interested in changing jobs and employers in search of replacements or additions to their departments may take advantage of this service. When writing, specify whether you want the applicant's form or the employer's form. Address all correspondence—whether for forms, or in answer to an employment advertisement, to: Box No., Employment Service Department, PURCHASING Magazine, 205 East 42nd Street, New York 17, New York.

Experience: Five years accounting, 17 years purchasing, production control, material control from ass't. buyer to department head. Familiar with MRO materials, steel, forgings, ferrous and non-ferrous castings, production scheduling, inventory management, stockroom controls, receiving, shipping.
Education: B.S. Degree, Bus. Adm.
Will relocate.
Write Box 395

Experience: Excellent experience in purchasing, materials management, and traffic for home prefabricator, and, also large project builders. Good connections in direct lumber and building materials buying. Long experience in accounting and management.
Education: Major in accounting, also special courses on management for homebuilders
Will relocate.
Write: Box 399

Experience: Fourteen months general manager of specialty plant. Ten and a half years purchasing agent. Responsible for all phase of purchasing. Ten and a half years member of N.A.P.A. Four years head of quality control. Two years manager of plant maintenance.
Education: Two years college. Graduate of electrical school; special purchasing course conducted by N.A.P.A.
Will relocate. yes
Write: Box 398

Experience: Eighteen years diversified experience purchasing agent in petroleum, rubber, heavy machinery, electronics. Experienced in administrating government sub-contracts and construction contracts. Value analysis experience. Pioneer in IDP purchasing procedures. Supervised inventory control, warehousing and traffic.
Education: B.S. degree in business administration. Two years business law.
Will relocate.
Write: Box 385

In-Stock Service

on Carpenter Stainless No. 20 and No. 20Cb

forms, sizes and shapes for most corrosion problems

• Besides keeping our warehouses fully stocked with all forms of Carpenter Stainless No. 20 and 20Cb, we maintain fast, modern facilities to make up and speed your orders to you . . . no matter what your deadline. *Our service teams are geared to handle your most urgent delivery needs.*

Available from stock in sheet, plate, pipe, tubing, strip, bars, wire and billets, Carpenter Stainless No. 20 and 20Cb are as easily fabricated as ordinary stainless steels. You get long-life control of sulphuric acid and other severe corrodents in a hurry when you order Stainless No. 20 and 20Cb. One installation of this Super-Stainless will outlast most other corrosion-resistant alloys . . . economically. Contact our nearest office or authorized distributor (located in over 40 cities, coast to coast). Write on your company letterhead for technical bulletin 108A. The Carpenter Steel Company, Alloy Tube Division, Union, N. J.

your master key to cost-saving corrosion control

Carpenter

Stainless No. 20 & 20Cb

Carpenter Stainless No. 20 bars, strip, wire and billets are available also from The Carpenter Steel Company, Reading, Pa.

For More Information Write No. 287 on Inquiry Card—Page 32

Advertisers In This Issue

A

Acco Products, Inc. 138
Ace Drill Corp. 65
Ackermann Manufacturing Company, subsidiary of Wheeling Steel Corporation 53
Adams Company 181
Allegheny Ludlum Steel Corp. 59
Allis-Chalmers Mfg. Co. 171
Aluminum Company of America 112, 121, 140, 141, 179
American Brass Co., The Fabricated Metal Goods Div. 123
Metal Hose Division 93
American Hard Rubber Co. Division of Amerace Corp. 120
American Rivet Co. 176
American Screw Company 108
Anaconda Copper Mining Co. of Subsid. Cos. 93, 126
Armour and Co. Ammonia Division 6
Armstrong-Blum Manufacturing Company 181
Associated Spring Corp. 163

B

Barnes Co., Wallace 163
Barnes Co. Ltd., Wallace, The 163
Barnes-Gibson-Raymond 163
Bassick Co., The 186
Bearings, Inc. 37
Bethlehem Steel Co. 38
Blaisdell Pencil Co. 138
Bostitch, Inc. 130
Bound Brook Oil-less Bearing Company 22
Brainard Steel Div., Sharon Steel Corp. 109
Bristol Co., The 181
Buffalo Bolt Co., Div. of Buffalo-Eclipse Corp. 154
Bulldog Electric Products, Co. 145
Bunting Brass & Bronze Company, The 113

C

Cambridge Wire Cloth Company, The 165
Carpenter Steel Co., The 183
Carpenter Steel Co., The, Alloy Tube Div. 129
Central Paper Company 155
Century Electric Company 1
Chicago Rawhide Mfg. Co. 3
Clark Equipment Co., Industrial Truck Div. 143
Classified Advertising Section 166
Columbia Southern Chemical Corp. 102, 103
Conover-Mast Purchasing Directory 136
Continental Can Company 60
Continental Steel Corp. 160
Crane Company 8
Crucible Steel Company of America 95, 106, 107

D

Dana Corp. 48
De Laval Steam Turbine Co. 55
Deluxe Metal Furniture Co., Div. of Royal Metal Mfg. Co. 137
Do All Co., The 24
Dow Chemical Co., The 62, 63
Dunbar Bros. Co. 163
DuPont De Nemours & Co., Inc., E. I., Electro-Chemical Dept. 30, 31

E

Eagle-Picher Sales Co., The 114
Electric Auto-Lite Co. 149, 150, 151, 152

F

Felters Co., The 122
Flexonics Corp. 50, 51
Forge & Fittings Division of H. K. Porter Company 104
Foster Co., L. B. 168

G

General Bearing Co., Inc. 179
General Electric Company, Lamp Division 47
Gibson Co., William D., The 163
Gould National Batteries Inc. 54
Granite City Steel Company 56
Graybar Electric Co., Inc. 4

H

Hamilton Foundry & Machine Co. 100
Hardinge Brothers, Inc. 25
Harper Company, The H. M. 94
Hinde & Dauch 27
Hood Industrial Footwear & Gloves.... 42
Hyatt Bearing Div., General Motors Corp. 26

I

Illinois Tool Works, Sems Licensee, Shakeproof Division 159
Ingersoll-Rand Company 162
Inland Container Corp. 16
Inland Steel Co. 14

J

Jacobs Mfg. Co. 96, 97
Jenkins Bros. ..... 4th Cover
Johns-Manville, Dutch Brand Division 2
Jomac, Inc. 116

K

Kirk & Blum Mfg. Company 158

L

Lamson & Sessions Co., The 18
Lincoln Electric Co. 21
Lunkenheimer Company 10
Lyon Metal Products, Inc. 49

M

Manning Maxwell & Moore, Inc. 58
Marsh Corp., Jas. P. 180
McGraw Edison Co., Voicewriter Div. 139
Mead Corporation, The 101
Mid-West Abrasive Co. 156
Midwest Piping Co., Inc. 66
Minnesota Mining & Mfg. Co. 177
Moore Business Forms 133

N

National Acme Co., The 41
National Malleable & Steel Castings Company 157
Newark Wire Cloth Co. 61
Northern Plastics Corp. 178
Norton Company 169

O

Oakite Products, Inc. 126
Ohio Div., Associated Spring Corp. 163
Ohio Rubber Co. 64
Olin Mathieson Chemical Corp. Aluminum Division 12
Chemical Division 146
Osborn Mfg. Co. 166

P

Pacific Intermountain Express Co. 178
Page Fence Association 108
Perfection Gear Co. Amer. Stock Gear Division 174
Phoenix Mfg. Co. Flange & Forging Division 185
Port Huron Sulphite & Paper Co. 134
Powell Valves 39
Purchasing Magazine 172

R

Raymond Mfg. Co. 163
Reynolds Metals Company 127
Ridge Tool Company, The 52
Riverside-Alloy Metal Division H. K. Porter Company, Inc. 161
Rome Cable Corporation 118, 119
Ryerson & Son, Inc., Joseph T. 68

S

St. Regis Paper Company Container Division 147
Panelyte Division 124, 125
Sandvik Steel, Inc. 20
Scott Paper Company 40
Shell Oil Company ..... 2nd Cover
Signode Steel Strapping Co. 173
Socony Mobil Oil Co., Inc. 34, 35
Square D Company ..... 3rd Cover
Stackpole Carbon Company Carbon Division 46
Electronic Components Division 98
Standard Plastics Co., Inc. 176
Standard Pressed Steel Company 167
Steiner Company 170
Sterling Electric Motors, Inc. 175
Superior Tube Co. 36

T

Taylor Co., The Halsey W. 111
Thermoid Division, H. K. Porter Company, Inc. 33
Trans World Airlines, Inc. 43
Trent Tube Company 95

U

Uddeholm Company of America, Inc. 110
Union Steel Corp. 32
United States Rubber Co. 105
United States Steel Supply Co. 28, 29

V

Valley Electric Corp. 180
Vascoloy-Ramet Corp. 117
Veeder-Root, Inc. 153

W

Waldes Kohinoor, Inc. 115
Waterbury Rolling Mills, Inc. 148
Waverly Petroleum Products, Inc. 168
Weber Marking Systems Incorporated 128
West Chemical Products, Inc. 131
Weston Co., Byron 135
Wolverine Tube 99

Y

Youngstown Sheet & Tube Co. 45

Purchasing

205 East 42nd Street, New York 17, N. Y.

MUrray Hill 9-3250

Ray Richards ..... Publisher
Alex G. Graam ..... Assistant Publisher
Joseph T. McCourt ..... Sales Manager
Hugh Robinson ..... Eastern Regional Mgr., New York
Tom Navin ..... New York
Jack Morris ..... New York
Thomas F. Hannon ..... District Mgr., Chicago
Ed Crilly ..... Chicago
C. D. Francisco ..... Chicago
C. R. Kingsley ..... Western Regional Mgr., Los Angeles
Ellsworth Brown Central Regional Mgr., Cleveland
Robert Hawley ..... District Mgr., Cleveland
Jack T. Steelman ..... District Mgr., Detroit
Wayne Slockbower ..... Promotion Manager
Walter H. Kirchner ... Mgr. Circulation Service
Irene Kreidler ..... Mgr. Advertising Service

BRANCH OFFICES

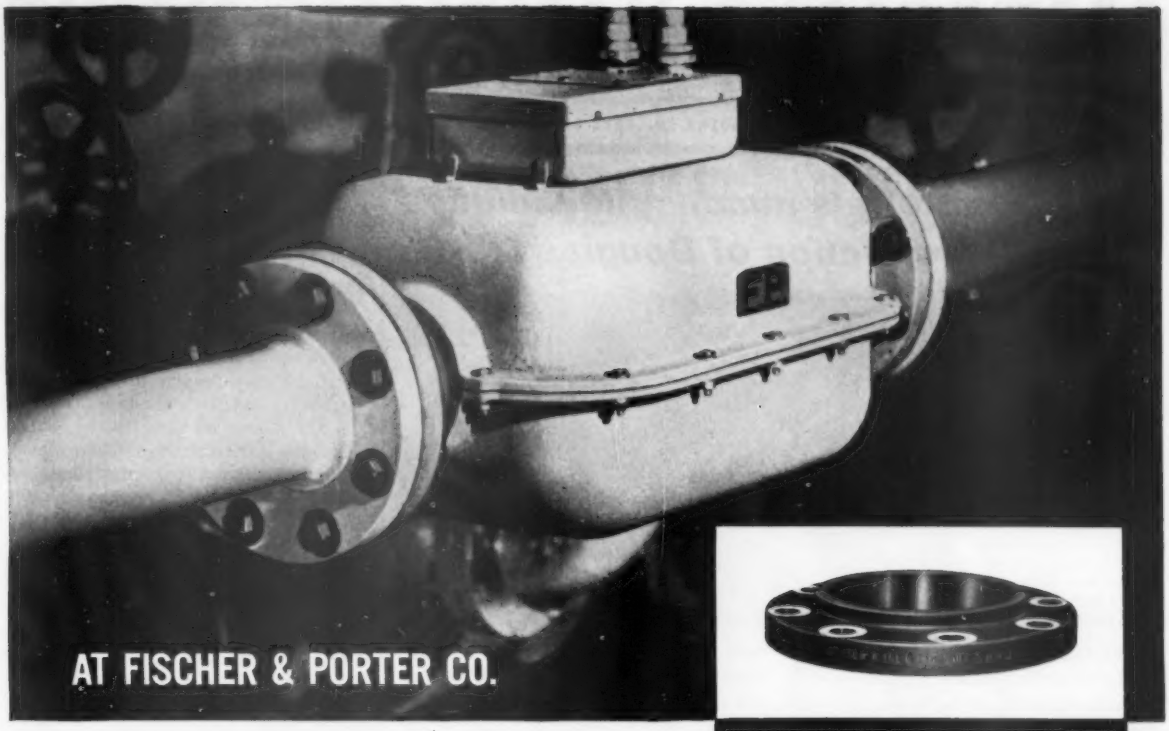
737 North Michigan Avenue ... Chicago 11, Ill.
1900 Euclid Avenue ..... Cleveland 15, Ohio
864 So. Robertson Blvd. .. Los Angeles 35, Calif.
868 National Press Building Washington 4, D.C.
15817 James Couzens Highway .. Detroit, Mich.

Published by
CONOVER-MAST PUBLICATIONS, INC.

B. P. Mast, Sr. ..... Chairman of the Board
B. P. Mast, Jr. ..... President
Ray Richards ..... Vice President
A. M. Morse, Jr. ..... Vice President
A. H. Dix ..... Vice President, Research
Harvey Conover, Jr. ..... Secretary
Leo Haggerty ..... Treasurer
John T. Dix ... Director of Mid-West Operations
L. E. McMahon ..... Production Manager
Daniel G. Smith ..... Circulation Manager

NBP EPA

Conover-Mast Publications
Purchasing
Mill & Factory • Space/Aeronautics
Construction Equipment
Electrical Manufacturing
Volume Feeding Management
Business/Commercial Aviation
Conover-Mast Purchasing Directory



...A Partnership in Quality

MAKES POSSIBLE A NEW FLEXIBILITY IN FLOWMETERING

Fischer & Porter, noted for their quality metering devices, manufacture Magnetic Flowmeters used by all industries where accurate flow measurement is required. Accuracy can be held to plus or minus 1% even under the most difficult operating conditions. At their plant in Hatboro, Penna. their design, engineering, production and purchasing departments all demand quality and service. That's why Phoenix pipe flanges have been specified and relied upon for years.

Specify Phoenix too. You can't buy a better flange.

YOU GET ALL THIS IN PHOENIX FLANGES:

- **Forged Steel. Shot Blasted.**
- **Full A.S.A. Specifications—Carbon Steel and Alloy.**
- **Spot-faced Bolting Surfaces, Extra Fine Facings, Accurate Threading and Protective Coating**
- **Serrated Gasket Surface Finish Is Standard On ALL Flanges With Raised Facings**
- **Precisely Machined Welding Bevel**
- **Special Facings, Bores, Drilling, Threading and Special Machining**

Leading Manufacturers of Pipe and Tank Flanges and Commercial Forgings

PHOENIX

FLANGE AND FORGING DIVISION

PHOENIX MANUFACTURING COMPANY

DIVISION—UNION TANK CAR COMPANY

CATASAUQUA, PA. • JOLIET, ILL. • FOUNDED 1882

PHOENIX DIVISIONS: FLANGE AND FORGING DIVISION, STEEL MILL DIVISION, HORSESHOE PRODUCTS DIVISION, FABRICATING REBAR DIVISION

For More Information Write No. 288 on Inquiry Card—Page 32

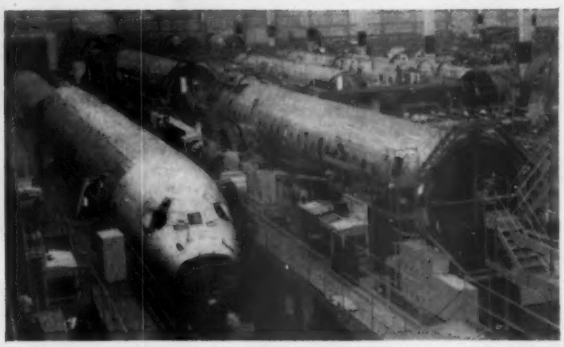
MATERIALS-HANDLING NEWS

NEW AND UNUSUAL APPLICATIONS OF BASSICK CASTERS THAT MIGHT BE ADAPTED TO YOUR HANDLING PROBLEMS

Jet age materials handling techniques used in production of Douglas DC-8

Grooved wheel casters

Major advantages of Bassick grooved wheel casters are more efficient movement of materials, better utilization of floor space, floor protection and close control of parts and equipment handled.



As the 19,000 pound fuselage assemblies for DC-8 Jetliners take form in the DC-8 assembly building at Long Beach, California, big Bassick Grooved Wheel casters shoulder the giant load.

Many other handling jobs in the production of more than a hundred DC-8 Jetliners at Douglas Aircraft Company, Inc., were also turned over to grooved wheel casters, operating on inverted angle iron tracks (see inset). Handling fixtures rode grooved wheel Bassicks to bring workers into position to assemble nose section. And lower fuselage sections are rotated on rigid grooved wheel casters built into giant turning rings which themselves ride additional grooved wheel casters.

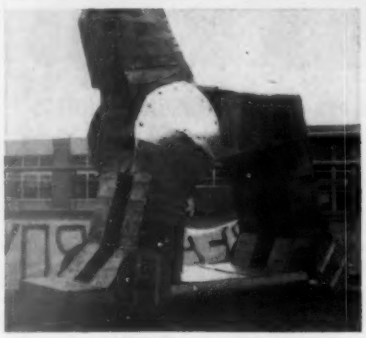
As material and labor costs continue to rise, many major aircraft and other companies are streamlining materials handling methods as a means of holding price and profit lines . . . an idea well worth your careful consideration.

NEW SANITARY CASTERS

Bassick's new B-line includes 4" and 5" rigid and swivel casters. They are specially designed for easy cleaning to conform with the Baking Industry's Sanitary Standards. Sanitary casters are ideal for use in food processing, bottling plants, restaurants, pharmaceutical houses, fine chemical plants, textile plants, hospitals . . . anywhere cleanliness is important.

Casters on duty at White Sands Proving Ground

When IGY researchers use modified Nike missiles (above) to gather temperature, pressure and wind data, the launcher rolls out to the pad on casters. Bassick casters are also widely used in missile production as well as launching and testing. Reason: sturdy Bassick quality construction safeguards loads handled.

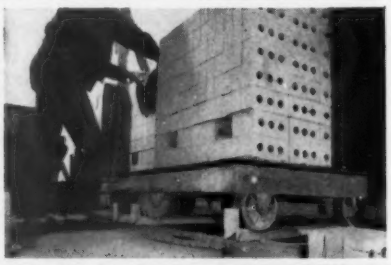


Your Distributor can keep you up-to-date on handling methods

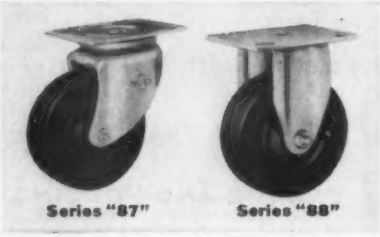
Don't be fooled by the big wooden wheels on this modern Trojan Horse. Actually, it rolls on Bassick Series "77" swivel and "78" rigid casters underneath. Point is that we've learned something about materials handling in the past 4000 years. And we keep learning . . . with new ideas, new products, new angles coming up all the time. Good man to keep you abreast of the latest materials handling data is your local industrial distributor who handles Bassick casters. It's good business to know him. 9.36

RUGGED CASTER DUTY

At Robinson Brick & Tile Company, Denver, Colorado, they "package" 20 million bricks a month. Bricks are mounted on nine carts equipped with rigid Bassick grooved wheel casters, rolled into position for steel strapping and then placed in storage by a fork lift truck. The casters above are left in the open, exposed to all weather and have been used three years without replacement.



New "Qualecon" casters



Series "87" Series "88"

Taking their name from the fact that they combine quality with economy, Bassick's new sizes of swivel and rigid wrought-steel casters are designed with the quality features of Bassick "H-99" series casters and quantity produced for economy.

The Qualecon casters are ideal for platform trucks, portable lifts, conveyors, stock trucks and much other equipment where total loads range between 1000 and 2000 lbs. for hard wheel casters or 600 to 1200 lbs. for soft wheel casters.

THE BASSICK COMPANY
BRIDGEPORT 5, CONN.
IN CANADA:
BELLEVILLE, ONT.

Symbol of Excellence SW Bassick A DIVISION OF STEWART-WARNER CORPORATION

For More Information Write No. 289 on Inquiry Card—Page 32

When you buy Motor Starters--

YOU PAY FOR OVERLOAD PROTECTION

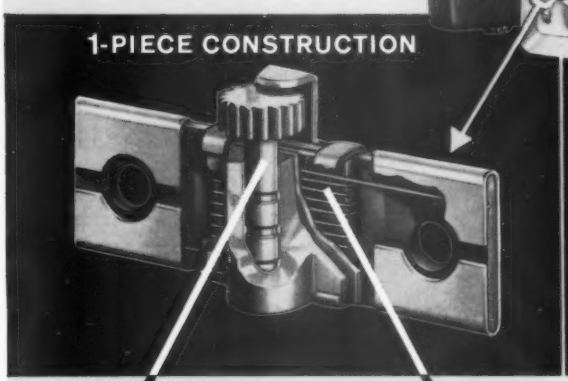
...BE SURE YOU GET IT!

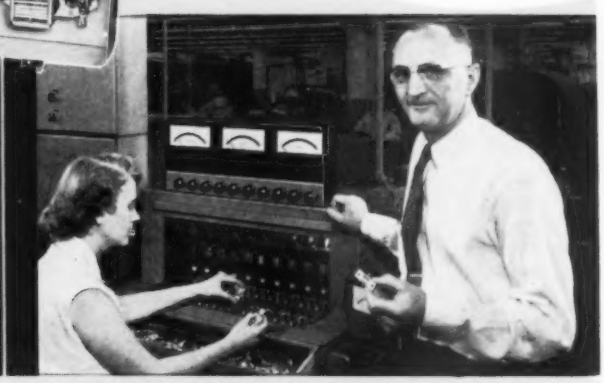
Only ONE-PIECE Overload Relays give 100% Protection • Only with ONE-PIECE construction can you *know* you've installed the heater correctly. Only with ONE-PIECE construction can you *know* the heater is exactly centered, or properly positioned, so that it performs according to its rating. Only with ONE-PIECE construction can you *know* your motors have full protection.

Only Square D has ONE-PIECE Construction • ONE-PIECE construction *eliminates* any possibility of heater misalignment. Square D melting alloy thermal overload relays can be installed only one way. They are tamper-proof. They are factory-assembled, are *individually* calibrated and tested. Repeated tripping will not affect accuracy.

Insist on Square D melting alloy thermal overload relays

***Write** for Bulletin SM-275 for the **complete** story on Square D starters with ONE-PIECE thermal overload relays. Address Square D Company, 4041 N. Richards St., Milwaukee 12, Wisconsin.*





Heat-responsive element (solder pot) provides accurate response to overload, yet prevents nuisance tripping.

Heat-producing element is an integral part of overload unit. It's permanently joined to solder pot, can't become misaligned.

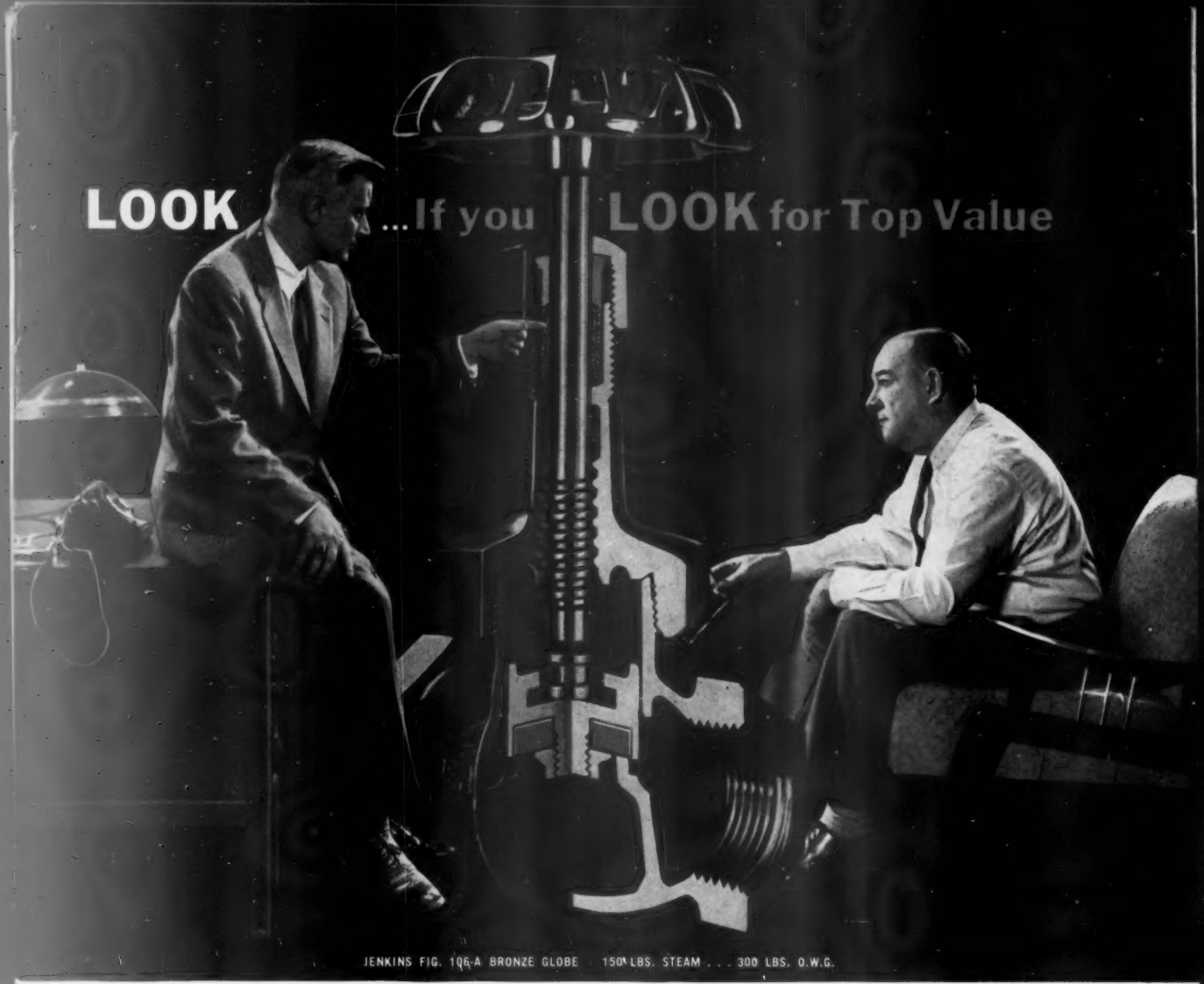
Individual factory inspection of every Square D melting alloy thermal overload relay means performance you can trust. Each unit is calibrated and thoroughly tested to make sure it will perform according to its rating.

EC&M HEAVY INDUSTRY ELECTRICAL EQUIPMENT...NOW A PART OF THE SQUARE D LINE

SQUARE D COMPANY

For More Information Write No. 152 on Inquiry Card—Page 32

For More Information Write No. 153 on Inquiry Card—Page 32→



in Disc Equipped Bronze Valves

LOOK at that Wheel — Tough malleable iron. Design unequalled for cool, sure grip.

LOOK at the Index Plate — Has Fig. No. etched in green background. Held by wheel nut which is secured by rolled-over spindle end.

LOOK at that Spindle — Made of high tensile bronze. See how much heavier it is . . . how many more deeply cut threads engage bonnet. And, the crowned head that reduces friction on disc holder. Sure, it costs more to make a spindle this way. But it reduces wear, preserves packing, means easier operation.

LOOK at the Packing Nut and Gland—Note the heavy and deep bronze hex. And, that bronze gland designed to compress packing toward spindle.

LOOK at that Packing Box — Its depth equals 1½ times spindle diameter. More packing space means less repacking. An asbestos, lubricated and graphited packing is used.

LOOK at that Bonnet — One-piece, screw-over design with big hex surfaces is easy to remove. Take an extra look at the bevel joint between bonnet and body, serving as an internal brace against the crushing effect of the bonnet assembly. Millions of Fig. 106-A in use for years prove this unique design licks distortion and springing.

LOOK at the Disc Holder — It's the Slip-on Stay-on type originated by Jenkins. Correct protective depth prevents flaking or cracking of disc.

LOOK at the Disc — Easily renewed without removing valve from line. Made of compositions to suit various services . . . and **made by Jenkins,** the only maker of both valves and discs.

LOOK at that Body — Just compare wall thickness of this high tensile bronze body with any other valve. The factor of safety is many times higher than rating requires. See the curved diaphragm to protect seat from distortion by pipe strain. Note that the raised seat is higher to permit more reseating operations . . . and wider, so it won't cut into disc. Pipe threads are full length and clean cut.

LOOK at this . . . for Throttling

—Just replace the standard disc nut with this Throttling Nut and a Fig. 106-A becomes well-suited to throttling service. This unique nut reduces the effects of wire drawing and its long legs restrict flow for accurate control. Many plants take advantage of this versatile valve to reduce valve and parts inventory.

THE FIRST renewable composition disc valve was a Jenkins Valve, originated nearly a century ago. Compare today's Fig. 106-A Bronze Globe with any other. See why so many valve users agree that a *Jenkins* is still the FIRST for top value. For descriptive folder No. 189-B on the full line of Jenkins Bronze Globe, Angle and Check Valves write to Jenkins Bros., 100 Park Avenue, New York 17.

SOLD THROUGH LEADING DISTRIBUTORS EVERYWHERE

JENKINS
LOOK FOR THE JENKINS DIAMOND
VALVES
JENKINS
SINCE 1864
Jenkins Bros.